EDITORIAL
DOMESTIC ENGINEERING

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"THEY SAW THE LIGHT AND FOLLOWED IT."

THIS recounts a simple little story of success, the facts of which were brought to the attention of the editorial department of "Domestic Engineering" by one of its traveling representatives.

For many years, a certain plumbing and heating establishment was in the "barn" class. It was run by a master plumber and his wife. Back on the lot, far from the business section of town, stood the little shop, eking out a mere existence for its owners.

About a year ago, this master plumber attended his first state convention, and took his wife along. Nothing impressed them more than the possibilities of trade extension. They went home, having profited immeasurably, ready to act.

Getting Good Location First Step.

They acted! The first thing they did was to select a good downtown location. With that settled, a good showroom was fitted up. A number of specialties were also placed on the floor—gas heaters, washing machines, etc.

A strike has been on in their town for many weeks. Last week the "Domestic Engineering" representative dropped in to see how the folks were getting along, and to learn how much the strike had affected them. The proprietor was out, but his wife said: "The strike has hardly affected us at all, certainly not like most, if not all, of the other shops in town. You see, we're merchants now. We haven't been wholly dependent on the journeymen. Our retail sales have gone right along, and we have made money in spite of adverse conditions. Since the strike we have sold fifteen washing machines at $175 each, and that's only one item. We don't have to worry like we used to in the plumbing business. We're on easy street."

They are out of the rut!

THE ERA OF CREDIT.

THIS is the era of credit. No word is probably more used than that word, no feature of commerce so widely talked about and perhaps in all the field of business there is nothing so little understood. We use the word credit without appreciating how delicate a thing we have to deal with and how easily abuses may enter.

Failures and Panic.

Credit is intangible but must represent value. It must be exchanged for value and have a redemptive quality. To act as if believing that credit can proceed without restraint or limitation is one of those unfortunate things that continually cause disturbances. When credit departs from value and its redemptive qualities are thus imperilled, defaults take place, failures are precipitated with perhaps panic as the climax.

Study credit closely. Be sure in asking and giving it that there be a sufficient basis for the guarantee of its redemption according to contract. This is especially important now, because there exists enormous government borrowings, the redemption of which is long deferred, and we have the spectacle of obligations so tremendous as to be incomprehensible, resting not on value but on absolute waste.

The Cause of the Strain.

When recognizing that borrowings were made by the Allies and the Central Empires for the purchase of commodities that were soon destroyed, that underneath this vast amount of credit there rests, relatively speaking, no value except the taxing right, it is patent to the student why the present strain has come, why some of the nations are operating so near the insolvency line, why it is that every receiver and grantor of credit should do his utmost to keep the credit which he personally controls, liquid and arrange for its redemption within a reasonable time.

Credit Should Flow Steadily.

Credit must move on smoothly just as a stream flows through its natural course. Over extension or neglect of redemptive qualities are what clog the stream and prevent it from performing its normal functions.

This is indeed the era of credit. Because of its importance every participant in business, whether mercantile, manufacturing or banking, should seek to grasp the meaning of those natural laws of credit which cannot be abused without bringing hurt to some or many depending upon the persistence in which the abuses are indulged. This is a time when every act of business man or banker should be performed with the thought of its effect on credit as a whole uppermost in mind.

WELDING *as* APPLIED *to the* PLUMBING *and* HEATING FIELD

Many Contractors Use Welding and Cutting Equipment and Find it Practical—Welding Class for Plumbers and Steamfitters in Ralston School, Pittsburgh, Successful

By the Research Department of "Domestic Engineering"

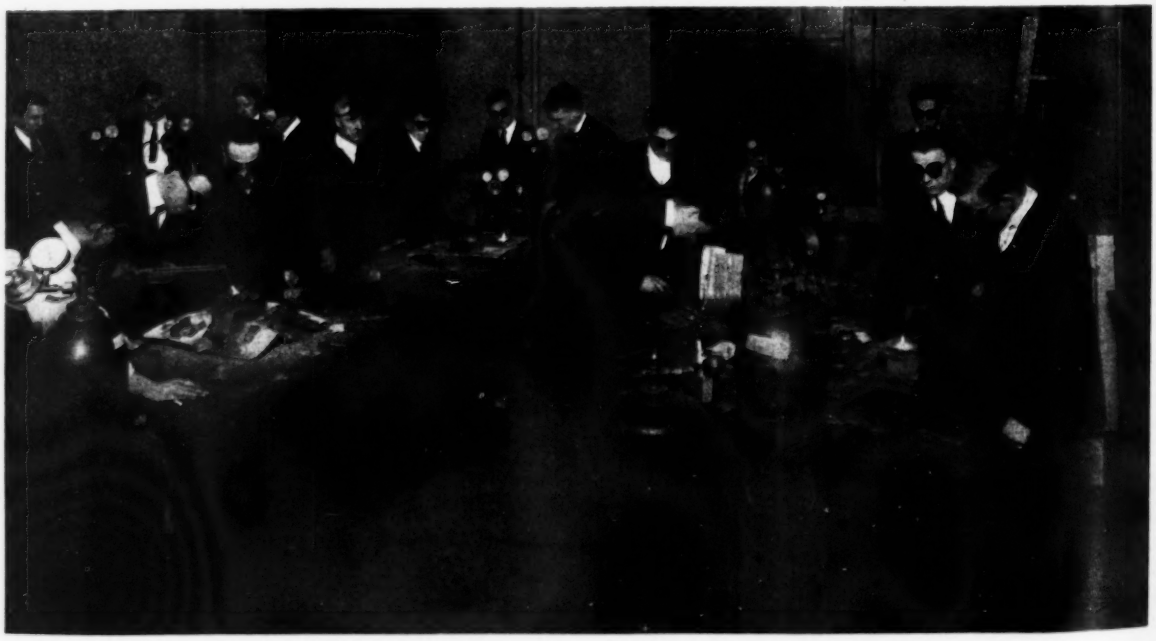
WELDING and cutting equipment has had a remarkable period of development during the past few years. In fact, a great many lines of industry now use it as an essential part of their equipment where it was barely considered a few years ago. It is used extensively in the building and repairing of ships, locomotives, railroad cars, automobiles, boilers, tanks, piping; in structural iron and sheet metal work; and in almost all plants and factories for repairing breaks in machinery where the delay in waiting for new parts and the time for changing would prove very expensive.

There are several kinds of welding and cutting, including A. C. and D. C. electric arcs, which are used extensively in large work, but are not yet very practical for work on light metal or small castings. Thermit, which is a mixture of metallic aluminum, iron oxide, and other minor ingredients for forming a steel, finds its special use where a large amount of metal is needed in making the weld. Thermalene is a gas which is used in equipment similar to that required for acetylene welding, but it is a low pressure gas, whereas oxy-acetylene gases are used at high pressure. Blau gas, Hydrogen, Carbo-Hydrogen, and other carbon gases are also used for cutting. However, as far as the men engaged in plumbing, heating, and metal work are concerned, acetylene welding equipment is the most practical. It will cut and weld practically any metal that will melt, and is particularly convenient for the cutting and welding of light metal, small castings, and pipe. It may also be used with the greatest success on very large work, but the man engaged in the plumbing, heating, and sheet metal trades will seldom have any need for it on that kind of work.

The strength of welded pipe connections has received considerable discussion. This is due in some measure at least to the reluctance in accepting anything new, and also to actual unsatisfactory connections which were the result of poor workmanship. Not long ago comparative tests were made at the University of Kansas of the strength of screwed and acetylene welded pipe connections and the findings given out are as follows:

1.—The cost of the welded connections is less than the cost of the screwed connections. The larger the pipe size, the greater is the difference.

2.—The time required to make up the screwed connections is about the same as that required to make up the welded connections.



Lead Burning and Welding Class of Plumbers at the Ralston School in Pittsburgh. At the Beginning of the Course.

4.—The strength of the welded pipe connection is practically the same as that of an unwelded pipe. By building up the weld it can be made as strong, or even stronger, than the rest of the pipe.

4.—The elasticity of the pipe is not much affected by welding.

5.—The strength of the welded pipe connections is greater than that of malleable iron screwed fittings. The strength of the welded specimens was from 113 to 171 per cent of that of the screwed connections.

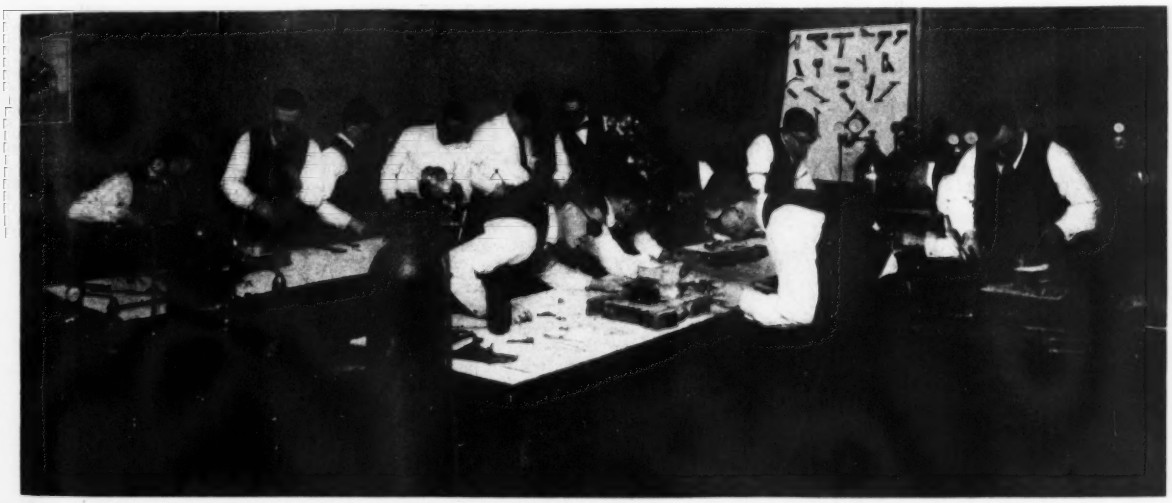
The most remarkable test of the strength of oxy-acetylene welded pipe connections was not made in a laboratory, however, but was made in the sinking of a casing in a Pennsylvania oil well. The casing, 6,321 ft. long, was made of 22 ft. sections of pipe welded together as the casing was being lowered in the well. It weighs 45 tons, which weight had to be supported by the last welded joint to go in. The company has formerly used heavy casings with screw fittings and reinforcing collars bolted together which took up considerable room in the well.

Acetylene welding and cutting is being used extensively in laying steel and wrought iron mains for high pressure manufactured and natural gas and oil lines. It is also being used more and more in both high and low pressure steam lines and all trench pipe lines where leaks occur because of rusted threads. Y's, T's, reducers, angles, etc., are also being welded onto the larger pipe lines. The cutting torches are used to great advantage by both plumbing and heating contractors for cutting out old pipe, cutting old boilers and tanks into sections to facilitate removal, cutting through girders, and a great deal of other work of similar nature. M. A. Klingber, of Zimmerman & Osborn, of Beloit, Wis., who has charge of the welding department of that plumbing and heating company, said:

"We couldn't do without our welding apparatus for it is in use constantly. Not only has welding been a big help in our business, but it has been a profitable department as well. We do sheet metal work here also, and find it almost indispensable for that branch of the business. This is chiefly a manufacturing city, and much of our work is done in the factories. The welding apparatus is used for repairing machinery, making guards, repairing castings, etc., and also in the making of the hoods for the smokestacks." In the same city, the plumbing and heating firm of Speckerman & Prafke use their welding and cutting apparatus in much the same way, and also do welding of automobile parts. Jacob Soffel, of the George H. Soffel Co., one of the largest plumbing and heating firms in Pittsburgh, Pa., is very enthusiastic about oxy-acetylene equipment for cutting and welding.

"Welding and cutting equipment is of particular value in doing work for garages and engine manufacturers. It is also a very good thing on high pressure steam work, both for pipe connections and fittings. During the war one of our men who enlisted as a plumber was sent to an army welding school, and later was sent to Belgium, while in the service, to do some welding there. After this man was mustered out, he returned to our shop, and one day while working on a big job he insisted that a welding and cutting apparatus would expedite matters a great deal. We got the equipment and have been wedded to it ever since, in fact, we have had two sets going part of the time. Whenever the opportunity presents itself now, we weld. On the Pennsylvania Chocolate Co. job we welded all the steam pipe, and it's as pretty a job as you will want to see.

"The older heads in this business have been slow to adopt welding, but the younger generation is getting into it strong.



Class of Plumbers and Steam Fitters Receiving Instruction in Welding at the Ralston School in Pittsburgh. In the Middle of the Course.

For taking out old boilers, pipes, tanks, etc., the cutting torch is the cheapest thing in the world. Even in getting into old buildings, we use it to cut girders to save time getting in. Of course, we do not use the equipment all the time, but we find it a good thing when we need it. For instance, on the Pittsburgh Model Engine job we brazed all the gas, air, oil, and water lines as it had been specified. Because we had the equipment, we could do the work as we came to it, and were not held up waiting for some one else to come and do it. We used to call in others to do this kind of work, but much of the time we couldn't get the service when we wanted it; so we decided to have our own, and as soon as we have too much of this work for one set of apparatus to handle, we'll just buy another.

"The man who wants to stay up in front in the plumbing and heating business must accept new ideas. Welding and cutting with the acetylene torch has been forced on us. It is part of the new development, and the fellow who doesn't recognize its possibilities and make the most of them must go backwards."

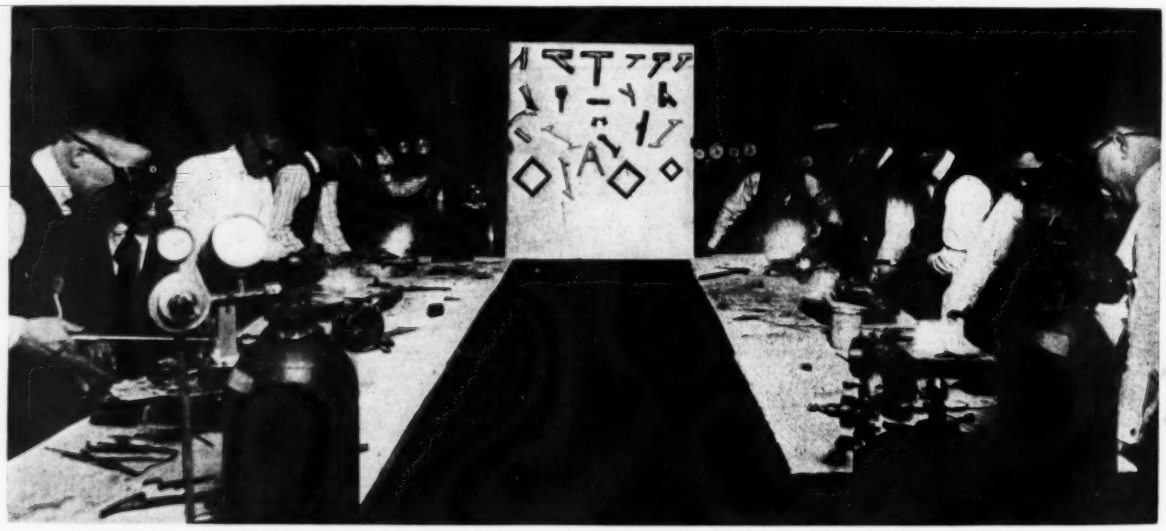
Joseph Weldon, of the firm of Weldon & Kelley Co., of Pittsburgh, in discussing the use of oxy-acetylene and cutting apparatus in the plumbing and heating business, said. "Yes, we have this kind of equipment. It is not busy all the time, but we have it when we need it, which is a very important factor."

"The welding of pipe for all underground trench work is bound to come," said Lyle G. Emery, of the Lyle G. Emery Co., a plumbing, heating and ventilating firm with headquarters in Pittsburgh and New Castle. "Welding does away with the leaking at rusting threads and makes a stronger connection. It also saves fittings, thread cutting, etc., and is particularly good wherever headers are used." The Emery company was at that time putting in a new heating plant in the Allegheny County court house. Mr. Emery pointed to a large line of pipe and remarked: "All joints in that 12-inch pipe line are welded. It cost us only a couple of dollars to weld a nipple onto that line where a T would have cost us $51.00. When the men started to take out the old pipe in this building, they began with wrenches, but couldn't get anywhere; so we brought the acetylene cutting torch over and cut the pipe out in a fraction of the time it would have required for removing them with wrenches. Altogether we took out over a carload of old pipe in this place and the jail. I believe in being progressive and taking advantage of anything new that will be of help to the business, and as the acetylene welding and cutting apparatus has proved its usefulness to us, we are strong for it, especially now that we have men who really know how to use it."

J. G. Werner, superintendent of the Stinson-Kennedy Co., of Pittsburgh, said: "I think that acetylene cutting and welding is the coming thing for the plumbing and heating business and that it will be used in all concealed pipe line work. It is particularly necessary in all pump lines where there is vibration and it is being used extensively in all service stations for gas and oil. We are putting in fourteen tanks for the Gulf gasoline people and welding is insisted upon by this company. Gas companies all over the country are using welding in connection with the laying of their mains. We have some of this work to do next month. Last winter the boiler in the Harris theater building cracked. We put in some boiler cement to keep the boiler going until we could put in a new one, but there is no reason why the old boiler could not be welded and kept in readiness for an emergency. The cutting apparatus is very useful in removing old boilers, pipe, tanks, etc., and also in cutting through girders in running pipe. Acetylene cutting and welding is the coming thing in this business, and we may as well make the most of it."

There are quite a few other men engaged in the plumbing, heating and sheet metal trades who have acetylene welding and cutting equipment. However, according to interviews with a large number of men in the trade and from information furnished in answer to a questionnaire sent to others throughout the United States, there are a great many who use acetylene welding and cutting, but do not own and operate the equipment themselves. The reason given for this condition is that they do not want to hire an expert welder to do that kind of work and nothing else, because of the fact that they would not have enough work to keep him going. For this reason they have let their work out to welding companies as they have needed it, even though it has often meant delay and considerable expense. Many have stated that they would provide themselves with the apparatus, if they had men of their own who could operate it successfully.

Many of the more progressive men of the trade are beginning to realize that, unless they provide themselves with welding and cutting equipment and men who can handle it successfully, they are going to lose considerable business that rightfully belongs to them, especially in the way of large pipeline work. In fact, quite a bit of it has been lost already.



Another Picture of Class Studying Welding in the Ralston School, Pittsburgh. Toward the End of the Course.

The journeymen, too, are beginning to realize this, and in many cases are preparing to meet it. The action of the journeymen plumbers and steamfitters of Pittsburgh is evidence of this.

"The future is going to see a much greater use of welding in connection with this trade," said C. J. Lawrence, vice-president of the Journeyman Plumbers' Union of Pittsburgh. "It is up to us journeymen to be ready to do this welding, or see it go to someone else, and we are not going to let this happen, if we can help it. Last year we arranged with the board of education to give a course in welding to apprentices and journeymen plumbers at the Ralston School. The course which was given from 7:30 p. m. to 9:30 p.. m., two nights a week, lasted from October to May. The board of education and the Air Reduction Sales Co. each furnished an instructor. The equipment was furnished partly by the same people, and partly by plumbing and heating contractors. We figured that the more we put into it the more we would get out of it; so we used the union funds to back the movement and give the instructors more money. To induce the journeymen and apprentices to attend regularly, there was a small money forfeit for not attending at least 75 per cent of the classes. The local steamfitters also had two nights a week at this school.

(Continued on Page 469.)

WHY STANDARDIZATION *is* ESSENTIAL

A Paper on the Standardization of Plumbing Materials, Prepared by Major William C. Groeniger, President, American Society of Sanitary Engineering

Editor's Note: The accompanying paper, prepared by Major W. C. Groeniger, president of the American Society of Sanitary Engineering, and an active member of the National Bureau of Standardization of Plumbing Materials, was prepared for presentation at the 38th annual convention of the National Association of Master Plumbers. Due to pressing business at the convention, unfortunately the paper was not read before the meeting, but is now presented for the consideration of the plumbing trade at large. It is timely to state here that the American Society of Sanitary Engineering holds its 16th annual convention in St. Louis, September 7th to 9th. Standardization will be one of the chief topics for discussion on that occasion and the association extends a hearty invitation to all master plumbers and sanitary engineers, as well as manufacturers and jobbers, to be present at that important meeting.

Wm. C. Groeniger

DURING the world war it was my privilege to travel some 30,000 miles, visiting South Africa, East South Africa, Portuguese East Africa, India, Egypt, Palestine, Syria, Italy and France. The difficulties of the many tongues and dialects spoken in the above countries cannot be appreciated in a country like ours, in which the language is standardized. What if we had forty-eight languages in as many states? Can you conceive what would have happened to our American efficiency if our army had to translate its tactics that many times? The war furnished the difficulty of handling men of many tongues. Those of you who have been overseas appreciate the value of standardized currency. There is no need of the money changer in this good old U. S. A. Think of the unnecessary expense caused by the lack of standardization of currency. Take the gauge of railroads and the difficulties encountered during the world war because of the lack of standardization. Picture in your mind what would have been the transportation problems in America under government jurisdiction had we the same difficulties as were experienced overseas.

The lack of standardization of threads in America caused more delay in production during the war than any other problem. You all know that the lack of standardization of threads has cost you thousands of dollars. The variation of threads upon the ordinary sink bolt have been enough to prevent interchangeability.

When the armistice was signed America was nearing full preparedness. Under reasonable standardization of material America could have advanced preparedness many months. We cannot estimate the value of those months in the saving of treasure and lives. Can there be any doubt as to the benefits of standardization?

The matter of standardization is by no means a one-sided affair. Not for the convenience of the manufacturers, not merely for increased production, but for the benefit of the jobber, the plumber, and, greatest of all, the consumer. You can get behind this movement feeling that it can be done without the selfish viewpoint.

It would be untrue to say that there has been no progress in plumbing. Full credit has never been given the American plumbing industry for its part in our scheme of American efficiency. No country in the world has made the progress in plumbing that has been made in America, and this refers to plumbing fixtures, devices and construction. What we need to stimulate progress is standardization. Standardization built upon that factor of safety consistent with our modern needs in fool proof construction. Geographical location, local pride and prejudice must be put aside and service, self-sacrifice and co-operation be our slogan. We have a duty to perform in aiding the manufacturers to increase their facilities for production of the most useful commodities (plumbing and plumbing materials). To increase production we must first increase our means of production. The necessity for plant improvement and increased production of all kinds seems to be clearly written in modern history. We cannot meet world competition until our facilities for the production of necessities are in excess of those required at home. Who will deny the fact that what we call plumbing and drainage is an absolute necessity to our modern scheme of civilization? The importance of plumbing as a necessity can only be realized by people who are accustomed to its comfort and convenience and suddenly forced by the elements to do without. Let me quote you from a speech made by the Hon. William C. Hassler, M. D., Health Officer, San Francisco:

"San Francisco taught the world one other great lesson after the great earthquake and fire in 1906, not only in the measure adopted to prevent an epidemic of disease, but in the spirit of co-operation which has resulted in the splendid city you see today.

"Having shared in the responsibility for directing the sanitation of the city on the above occasion, I deem this a fitting moment and particularly opportune, to pay a tribute to the craft who compose the membership of this international body.

"One of the greatest needs following the disaster mentioned, was to conserve to this city its water supply and reestablish the broken side sewers the result of the quake. For more than a week over 700 journeymen and master

plumbers, who responded to the call of the Board of Health, labored from early morn to late at night, without the hope of fee or reward, other than the thanks of the Board of Health.

"This heroic self-sacrifice and devotion to humanity at a critical moment cannot be measured in dollars, but that it did as much as any other measure in preventing an epidemic of disease must be obvious, and it is a great pleasure for me to thus publicly acknowledge the service on the occasion of this, the first convention of the American Society of Inspectors of Plumbing and Sanitary Engineering held in our city."

Let me also call your attention to the situation at Dayton and other cities in Ohio during and immediately after the flood of 1913. Having shared in the responsibility of directing the rehabilitation of Dayton, I can speak with authority upon the part played by the plumbers in this work. Again, without hope of fee or reward, they applied themselves to the job at hand.

There are some things that money cannot buy, and one of them is the happiness that comes to a plumber after he has converted a nuisance into a place fit for human habitation and occupancy. This same spirit of service, self-sacrifice and co-operation is needed in the work that we have before us.

Progress in Ohio.

During the last ten years I, personally, have been a close student of this subject. Part of the time in an advisory capacity to the Ohio State Building Code Commission and as a member of the Committee of the American Society of Sanitary Engineering. For years I have studied how best to acquire knowledge for the benefit of my own state. My former position brought me in direct contact with the necessity of standardization. Ten years ago we had in Ohio, thirty cities with thirty plumbing codes, that were widely separated in their requirements. What was considered good practice in one city was considered bad in the other. Complications, confusion, unadvised specialties, inconsistency and lack of impartial enforcement, were some of the conditions. The passage of the State Plumbing Code is gradually eliminating these conditions. One by one the cities are falling into line. A movement of standardization cannot be revolutionized, but can only be accomplished by evolution. Local pride and prejudice, coupled with indifference, are two of the greatest difficulties which must be overcome.

Establish a Foundation.

I do not consider myself by any means competent to create standards, and at best the result of anything I might do would only be considered a skeleton to build upon. At the suggestion of President C. V. Kellogg, Secretary Paul Blatchford, Mr. Baggot and Mr. Hanley I was privileged to present to the Bureau of Standardization a working outline that was the result of years of study. In the past we have had many expressions as to what would be the best framework upon which a superstructure could be built. The absence of that foundation upon which to build a code has obviously delayed its completion. The principal object at this time is to establish that foundation and let these men in this country who are interested assist in building the superstructure.

Experience has taught me that to neglect any one particular subject would weaken that foundation. When it comes to omitting various titles and sections it is impossible for one to pick out any that are not of equal importance. Again the assembling of the subjects to avoid confusion and misinterpretation and make it necessary to include all matters upon which regulations are necessary and advisable. The goal which the Construction Committee of the Bureau of Standardization has sought to obtain has not been reached, for we are not prepared to furnish you with a complete tentative draft of a code. We have, however, completed an outline which divides the code into thirty-six titles. The sections of the first twenty-one are to be numbered consecutively, in order to avoid confusion in reference. The sections of the last fifteen titles are numbered separately, because they are auxiliary to the code itself and each can be handled separately by states and cities. The following will outline the order in which the subjects are handled:

Divisions of Plumbing Code.

Preamble. Definition of Plumbing.
Standardization of Symbols.
Title 1. Definition of Terms.
Title 2. General Regulations.
Title 3. Workmanship, Quality and Weights of Material.
Title 4. Joints and Connections.
Title 5. Traps and Cleanouts.
Title 6. Fixtures—Water Supply.
Title 7. Toilet Room—Facilities.
Title 8. Ventilation of Rooms and Fixtures.
Title 9. Soil, Waste, Vent and Back Vent Pipes.
Title 10. House Sewerage and Drains.
Title 11. Storm Water Drains.
Title 12. Garage, Dye House and Other Special Wastes.
Title 13. Refrigerator, Safe and Special Wastes.
Title 14. Inspections and Tests.
Title 15. Pumps and Hydrants.
Title 16. Catch Basins.
Title 17. Water Supplies.
Title 18. Sewage Treatment.
Title 19. Vaults and Outhouses.
Title 20. Maintenance for Sanitation.
Title 21. Administrative.
Title 22. Camp Sanitation.
Title 23. Slaughter House and Retail Establishment Regulations.
Title 24. Summer Resorts and Places of Amusement.
Title 25. Railroad Sanitation.
Title 26. Factory Sanitation.
Title 27. Public Comfort Stations and Drinking Fountains.
Title 28. Public Bath Houses and Wash Houses.
Title 29. School Sanitation.
Title 30. Hotels and Restaurants.
Title 31. Gas Fitting.
Title 32. Soda Water, Soft Drinks, and Ice Cream Dispensaries.
Title 33. Plumbers' license.
Title 34. Sewer Builders' License.
Title 35. To regulate the use of sanitary and storm water sewers, to provide for the operation and maintenance of sewers, public stations, and sewage treatment works.
Title 36. To Regulate the Use of Storm Water Sewers.

It will require considerable more time and energy to complete the work started, but your committee feels that which has been accomplished is the foundation which we have been endeavoring to build. The collecting and assembling of the matter included has been a one-man job. It will be part of your duty to constructively criticise that which we offer.

Build for the Future.

For years many of us have been thinkinig in terms of standardization of plumbing practice. We have looked longingly at the heavens, thinking of standardization, but have continued in the gutters. Higher ideals have been our goal, but the lack of unity of action has held us short

(Continued on Page 471.)

NOTES *on the* INSTALLATION *of* HOT WATER HEATING SYSTEMS *in* FINE RESIDENCES

The Difficulties Encountered in One Large Job Are Carefully Explained, and Some "Do's and Dont's" Are Offered for the Solution of Intricate Problems

By R. L. Emmett

THERE is no branch of heating work requiring greater skill, judgment and experience than the heating of fine residences. That this is so is due in great measure to the fact that the heating contractors have for years patiently submitted to, and met the demands made upon them by designers who have proceeded with their arrangements to locate everything in the house, with a sublime disregard of the fact that the house must be heated, if it is to be occupied at all.

This condition exists because the heating contractor has brought to the solution of his problems a patience and skill born of experience, which I am sure is without equal in the building trades. And the designers of homes have taken it as a matter of course that the heating man will meet and overcome the difficulties. And he does.

The very variety of sizes, shapes, and style of radiators will, in a measure, indicate the complex situations which arise in the location of radiation alone. After liberal provision has been made for furniture, doors, fixtures and windows, very frequently precious little space remains to place a radiator; and the housewife does not want a radiator sticking around anyhow. Then there is the further difficulty arising from the fact that adequate or proper provision is seldom made for the installation of the pipe work. The heating contractor must take the building as he finds it, and get through a mass of material, literally intruding his pipe work, and leave the structure firm, unscarred and undamaged.

Even the boiler is given but scant courtesy in the matter of space and at times the heating man must exercise all his ingenuity to secure space enough to swing a shovel in front of the boiler. The placing of the chimney is usually just a happenstance and its size and height are accident. Sometimes it works out pretty fair. But if the draftsman who happens to jot down this little detail of a chimney for the boiler, puts in one about big enough for a good-sized gas vent, then another heating contractor "gets in bad."

The heating man, who is awarded the contract (why do they call it "awarded"—why not "punished with?"), must watch the job from the time it is just a hole in the ground until the family have moved in—and then some. For he cannot—as do the brick masons, the plasterer and the roofer—go on the job, finish it up and get away. He must nurse it through all its stages of growth and completion, with tenderest care and watchfulness.

Yes, indeed, it is *some job*, this matter of insinuating a hot water heating plant into a house, which a skilled designer has arranged with the apparent intention of keeping it out. If the solving of complicated problems is important in the education of our future generals, it would seem to be the part of wisdom to establish a chain of residence hot water heating at West Point. They could dispose of chess.

The residence heating plant which is described in this article is not offered as an especially bad example. As a matter of fact, it is very favorable. But there are some unusual situations which serve well to illustrate points intended to be covered and there is also some interesting examples of pipe work.

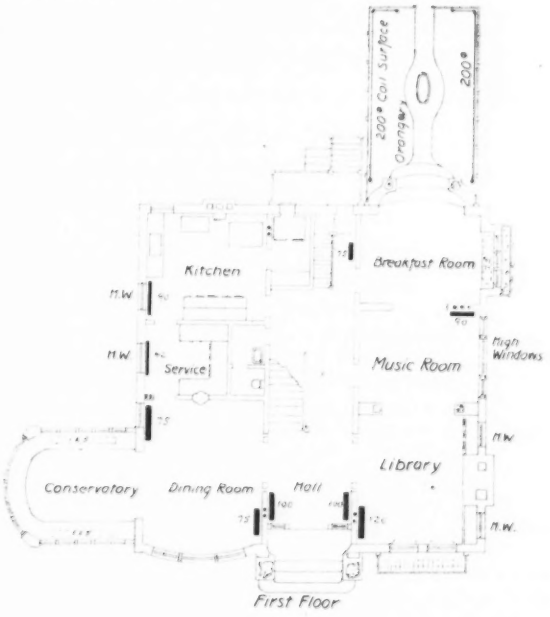


Fig. 1.

In the placing of heating surface the first essential is to heat the room; the next consideration is to avoid taking up valuable furniture space, and the third to have the radiator as inconspicuous as possible. For the rooms above the first floor there is a further consideration; to avoid undue cutting of the building material in running the branches; it is necessary also to look to rapidity and ease of circulation; and finally, all other conditions having been met, to economize in pipe and labor.

In the design of any hot water heating job, the first thing to do is to locate the radiators. Where and how these are located decides the whole layout, and as the occupants are

to occupy the rooms, perhaps for many years, the heating contractor should bring to bear the most careful thought to reach a maximum of heating results and convenience to his client. One very frequently sees radiators located in the only space possible for a dresser, and others which prevent shifting of the main pieces of furniture—that indoor sport

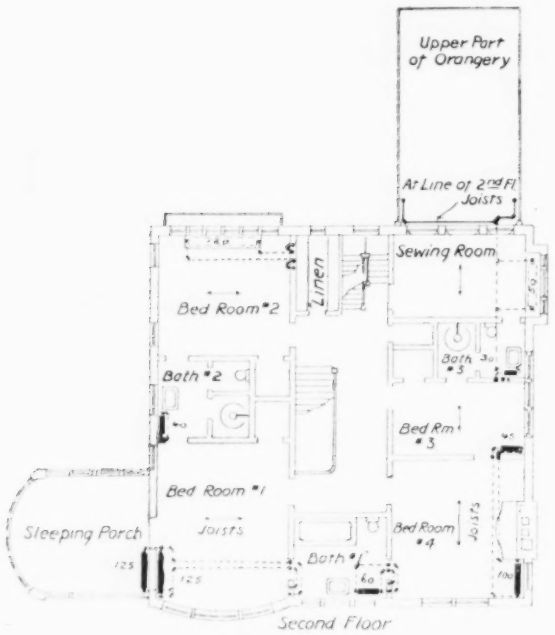


Fig. 2.

so dear to the heart of every housewife. Then, too, radiators are sometimes located without the run of the joists being known, necessitating boring 12 or 15 feet through joists; a very expensive blunder, if another location is optional.

Figs. 1, 2 and 3 show the location and size of all radiators, as well as branches under the floors. The lay of the joists is shown for the second floor; the third floor being the same. An analysis of these locations will be of benefit.

Throughout, an effort was made to avoid prominence in the locations. All of the heating surface for the main hall is located on the first floor; they are near the most exposed portions, and leave all of the rest of the hall free for furniture and for passage. There is an ample amount of furniture space left in the dining room. The ideal location would have been under the windows; this the owner objected to on account of furniture arrangements. In the conservatory the radiators are low, and placed under the benches, thus meeting every consideration. In the service room and kitchen, locations are beneath high windows, ideal in both cases. In the breakfast room any location except under the windows would have used up very limited space. The radiator is low and placed under a window seat. In the music room, the space selected is fair. In the library, very valuable furniture space is taken up, but none other is available, as the windows are the French type, swinging inward all the way to the floor, and book cases take up the west wall. The only other alternative in this room was indirect radiation which the owner did not wish. Extending out from the breakfast room and at a level midway between the first floor and the basement, is an orangery; this is heated by wall coils. This will be treated further on.

On the second floor, the locations were such as to increase the number of risers that could have been installed, but the arrangement was dictated by a desire to avoid the labor of boring joists. All important branches run between the joists. The radiators in Bath No. 1, No. 2 and No. 3 are well located from every standpoint. In bedroom No. 1 the same consideration held good that affected the dining room on the first floor. The sleeping porch was not important from the heating side, nor from furniture; the location chosen was simply because it is out of the way and convenient to the pipe work. In bedroom No. 2 an ample amount of excellent wall space was left; special pieces of furniture are intended for the spaces under the high windows on the east wall. The location on the south wall under the large amount of glass exposure is good, and the radiator is enclosed under a seat. In the serving room the radiator is located under the window on the only exposed side of the room, and is entirely out of the way, as well as convenient for piping. Bedroom No. 3 is a small and unimportant room; the space chosen is practically waste space and is alongside the riser. In bedroom No. 4, objection was made to placing a radiator under the north windows. That under the high window in the northwest corner is the next best. The locations for the third floor were chosen chiefly on account of the riser locations; low radiators were not desired and wall space is ample; hence the locations are the best obtainable. The trunk room is not heated, so that it becomes necessary to circulate the expansion tank, as shown in detail, to prevent freezing.

Fig. 4 illustrates in detail the scheme of circulating water to the coils in the orangery, which are below the basement supply mains. The main, instead of leading directly to the coils, is carried up to the third floor joists, descending in the form of a loop and coming out at the second floor joist line, and branching downward from that point to feed the coils. The returns are joined into a 2½-inch return main and run above the floor back to the boiler. The top of the loop is vented to the expansion tank, a return branch from the tank being taken off a tee immediately below the bottom. This supplies a sufficient amount of hot water to prevent freezing. The loop is really a one-pipe main. It supplies one radiator on the third floor and two on the second, the supply being taken from the top, and the return into the

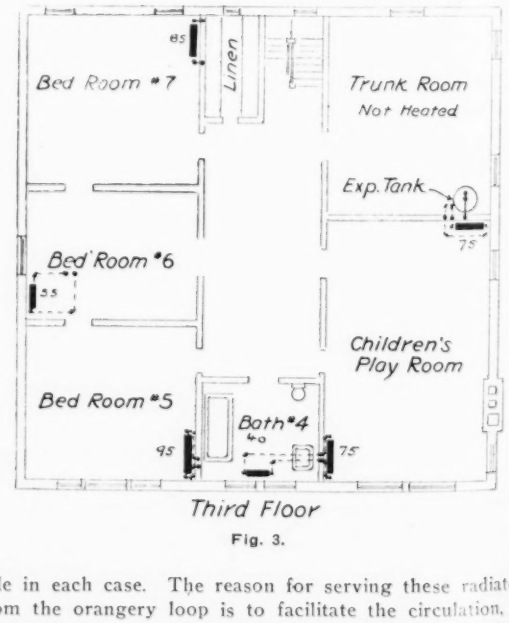


Fig. 3.

side in each case. The reason for serving these radiators from the orangery loop is to facilitate the circulation, by discharging cooler water into the downward current. If the loop was run as shown in Fig. 5, it would not be practical for the reason that as soon as circulation is established the two columns are at practically the same temperature, hence

the motive power gained on the first momentary heating of the upward current is lost as soon as the heated water passes completely over into the downward column. To correct this, the simple expedient of placing radiating surface along the line is used. This continually cools the water, and maintains the circulation. It is necessary, of course, to provide additional radiation at the point of final delivery to offset the temperature difference. No air vents are needed on the coils in the orangery, but are, of course, elsewhere.

The expansion tank is provided with an overflow which is extended clear to the basement, discharging to a drain. This overflow should never be discharged through the roof, as in severely cold weather it is certain to freeze and cause great damage to the plant. In order to prevent the system syphoning an air pipe is connected to the top of a tee. This is provided with a swing check valve to admit air, but prevents the discharge of water into the room when system is boiling over.

Fig. 6 illustrates the usual method of "breaking" risers to favor lower floors. This is not absolutely essential, but is the preferred method. There are special fittings on the market which are very good and serve to reduce the number of fittings used, as well as to keep the riser in alignment.

It is preferable, of course, in extending branches to radiators from risers to arrange to go between the joists. This, however, is not always possible. Where it becomes necessary to cross the joists, they should be bored, and the branch put in, in short lengths, coupled together as shown in Fig. 7. Notching joists, as shown in Fig. 8, are to be absolutely condemned.

The branches from the main to the risers, and first floor radiators, excepting the main and riser loop to the orangery, to which the expansion tank is connected, were all provided with gate valves on each branch, and a ½-inch gate valve for draining, so that repairs may be made at any time without shutting down the plant; this detail is shown in Fig. 9.

Fig. 10 shows detail of radiators placed under seats. This is a method first suggested by Mr. Beckbissinger, the Saginaw, Mich., architect. It is very effective, detracts practically nothing from the effectiveness of the radiator, and diverts the cold current dropping down from the window into the passage created by the galvanized iron deflector.

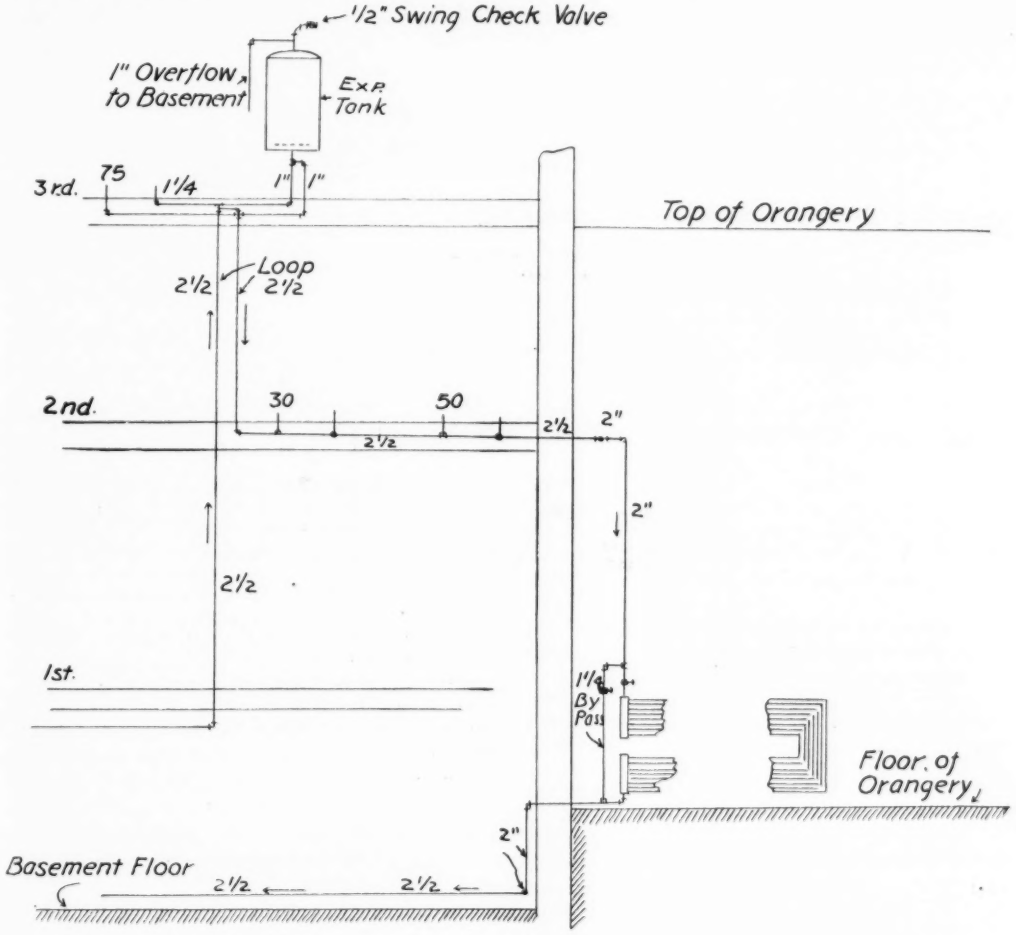


Fig. 4.

Fig. 11 shows use of a block under the stub riser. This is placed when roughing in, to prevent the branch from dropping out of place or being trapped in case the stub happens to be too long. The elevation also indicates the measurements which must be taken when roughing in the work in the first stages of the work.

It is becoming more and more the practice, when erecting large residences, to have them under roof late in the fall, and the interior finishing proceed through the winter. This is very good practice, as the materials become properly seasoned and dried, and the building much more substantial in every way. This, of course, necessitates heating while in the rough state. Some of the radiators are connected up in a temporary manner, about half the number usually,

and these are set out about four feet from the walls by means of extra, temporary branches as indicated in Fig. 12, to permit easy access for other workmen. An extra charge is made, based on the number of radiators. In the large cities this has become a fixed rate per radiator. It has been the writer's observation, however, that the charges made are frequently too low. A temporary heating job is a nuisance to the heating contractor, and always uses up a great amount of labor. In turning over a temporary heating job to the person in charge, some one having responsibility should be required to protect the heating contractor from his loss during the time it is being used, and the agreement should be in writing. And in every case the heating contractor should have collected at least 80 per cent of the total contract before turning the job over for temporary use.

When the building is ready for the first roughing in, sufficient material should be sent to the job for the risers and branches only, with extra caps for closing the stub openings after roughing in. At that time all holes for first floor radiators should be bored and the main measured. The men should then leave the job. The main should be cut and set aside together with all fittings needed to erect it. After the finished floor is in the basement, the boiler should be sent to the job along with the main. The boiler should be erected first, and the main following, so that if any boiler parts are broken or missing, time will not be lost in waiting. The last connections should be measured and ordered as soon as the boiler is erected, so that they will arrive before the men have finished erecting the mains and branches. If the job is to be temporary heating the radiators needed for that only should be sent, and be given a priming coat immediately.

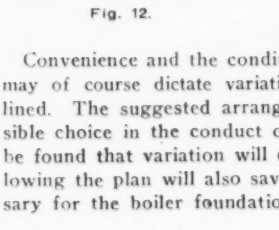


Fig. 12.

Convenience and the condition of other work in the shop may of course dictate variation from the program as outlined. The suggested arrangement allows the largest possible choice in the conduct of this and other jobs. It will be found that variation will entail greater labor cost. Following the plan will also save the time and material necessary for the boiler foundation. If the owner will arrange with the concrete contractor before the basement floor is laid, for a pit under the boiler, as shown in Fig. 13, it will be found to be a very great convenience and improvement. It should be about ten inches deep and two inches within the base at all points, providing a valved water connection through a hole drilled into the side of the base, completes an excellent arrangement. It allows more space for the accumulation of ashes, adds materially to the life of the grates, and, if kept moist by frequent spraying, is a great aid to good combustion. Fig. 13 also suggests connection of the smoke pipe straight to the flue, avoiding elbows; clean-out pocket is omitted in the brick flue, and placed in the iron connection instead. In erecting the boiler and connecting the smoke pipe, be liberal in the use of boiler putty; buy another can, if the amount sent with the boiler is scant; fill in every crack and place where air could leak or bypass. No place on the job will care be better repaid than right here.

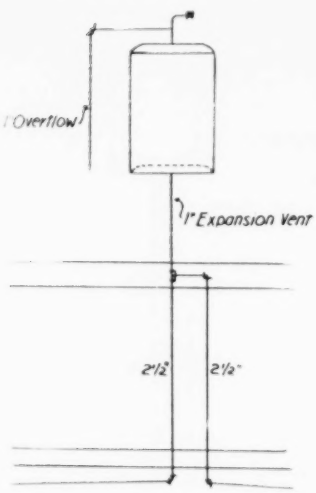


Fig. 5.

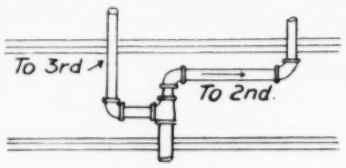


Fig. 6.—Typical Connection on Risers to Favor Lower Floor.

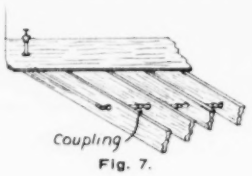


Fig. 7.

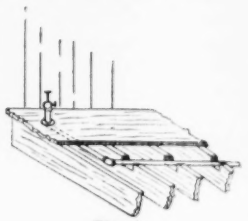


Fig. 8.

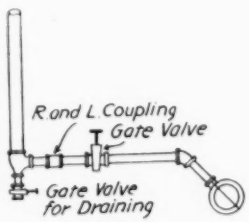


Fig. 9.

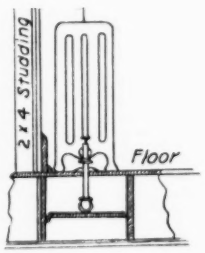


Fig. 11.

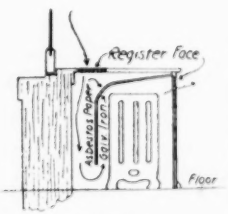


Fig. 10.

Before closing, it may not be amiss to speak a word in relation to the business side of the contract. Selling the job is very much a matter of inspiring the owner with confidence. That this was accomplished is evidenced by the award of a contract to you. Therefore, the time to smooth over possible chance of friction is when the job is sold. The most important means of doing this is to have an explicit, written agreement of just what is to be furnished; how, when and where; and how, when and where payments are to be made. Then stick to it, and demand like consideration on his part. Confer with the owner (and his wife) as to the location of equipment and give him a copy of the plan showing these locations. And do not make the mistake later on of permitting changes or additions without

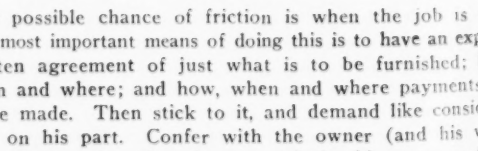
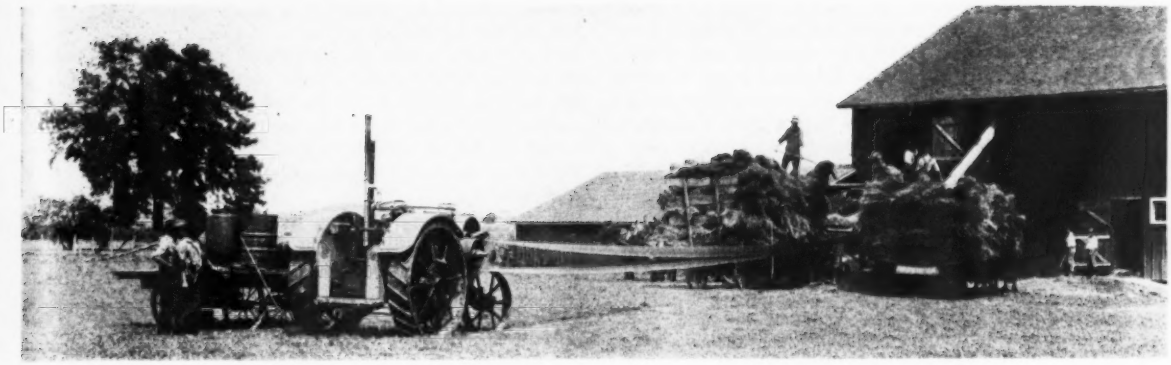


Fig. 13.

(Continued on Page 470.)



"ALL MODERN CONVENIENCES" *on the* FARM

What They Mean to the Farmer and His Family Furnishes Ample Selling Points for the Plumbing and Heating Contractor

By Henry F. Thurston

YEAR by year, the demand in the city is more and more for a house with heating equipment, hot water apparatus, stationary tubs for the laundry, electric lights, well-equipped bath room, a perfect sewage system, and, of course, running water throughout.

That, also, is what I mean when I speak of "all modern conveniences" on the farm, with this addition, that on the farm the equipment must be even more extensive than in the city, because it must be provided in all the out-buildings, and, often, extended to a considerable area surrounding the farm house and farm buildings.

The city man has secured all these things because he has been educated. The farmer is getting them just as fast as he gets into the same mood as the city man, in respect to "all modern conveniences." In fact, many of the farmers that, in the past, have gone along without these helps have been abundantly able to install all of them. But it was, in very many cases, the lack of desire on the part of the farmer that prevented the family of the farmer from having the comforts that the family of the city man had.

Said one man that was once a boy on a farm, "For ten years, as a boy on a farm, twice daily, in winter, I drew the water from the well with a pole, and carried it to the barn, to water four cows and two horses, besides drawing and carrying water the year round for the house. Yet, the barn was only 100 feet from the well, and the house a like distance from the well, and it would have been easy to run a pipe line from the well to the barn, and from the well to the house, and install pumps. There was always money in the bank, and money was loaned out on mortgages, so the cost would not have cut much of a figure. But, while I thought of the matter sometimes myself, I never mentioned it, and never heard it mentioned by anyone else in the family. We all took this unnecessary labor as a matter of course." That is the chief reason why these improvements have appeared slowly on the farm.

But during the past thirty years there has been a slow growth of the movement to equip the farm home and the whole farm establishment with the same conveniences that the city family has. This means new life to the farmer and his family.

Now there is a great awakening, and thousands of farmers have already done what more farmers are on the point of doing; and, ultimately, most of the 6,000,000 farms in this country will be modernized. Modernizing the farm is one of the big movements of the near future, and one that should be actively participated in by the plumbing and heating contractors.

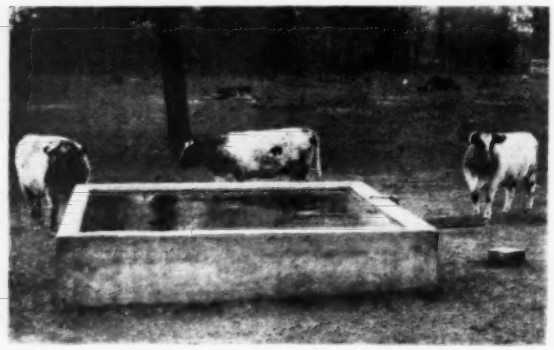
Already here and there we find farmers who have learned that money invested in modern conveniences is worth more to them than money at interest.

Money in Modern Conveniences Makes Several Kinds of Profit.

I knew a farmer that had lived for forty years on one farm, and had saved up $1,000 a year of the forty. When he was talking to me about it, he had this $40,000 loaned out on mortgages at 6 per cent. His farm had always been kept up and had paid all the expenses of himself and family. At the end of the forty years he had got the idea of building a fine house for himself, which he did. It was a big, beautiful house, and cost $5,000, at pre-war prices.

As he proudly showed me through the house, he said, "As you see, I have two water systems. One is for the barns, which are supplied with water by a windmill. A big reservoir in the top of the barn gives the pressure. I have pipes laid in the ground and running in every direction where we might need water. You see that I have a round cement tank in the pasture across the road. That tank is supplied with water through a pipe running under the road, which is laid so deep that the frost will never touch it. And I have an automatic device in the tank that keeps the water at just the right level. Recently we

have had but little wind. That doesn't make any difference with us, for I have a gasoline engine that pumps water when the wind fails us. The live stock in the pasture get all their water at that tank, and I don't have to worry, as I know their health is protected, for they can't get water in the pasture at any other point. It is a great mistake to



Cows Produce more Milk when they Drink Fresh Water.

let the live stock drink water we wouldn't dare drink ourselves.

"Then, in my house I have another system," and he took me into his basement and showed me the great tank of water and compressed air that had pressure enough to send the water high over the roof. Afterward he took me through his two bath rooms—one on the main floor and the other upstairs, each of them as completely fitted and furnished as in any city home.

"I made up my mind," said he, "that I was going to have just as many comforts for my family as any city man has. You see, I have electric light," and he turned on several lights. "I have them all over the house. Fortunately we are near enough to a cross country electric light line to make it possible for me to get service from them.

"Here are my stationary tubs for laundry work; they are connected with the hot and cold water apparatus. And I have one of the best hot water heating systems that can be installed in any house.

"All my barns are lighted with electricity, which is a great improvement over conditions that existed in the old days of lamps and lanterns.

"Before I put in these improvements, the principal thing I was interested in was money, bringing me in interest that I didn't need. I awoke to that fact and diverted part of it to putting in these improvements, which give me, my family and my friends real comfort and pleasure."

Bringing City Comforts to the Farm Holds the Family and Hired Man on the Farm.

A good lighting system on a farm is a paying investment, both in comfort to the family and in the way it solves many farm problems.

I visited a farmer who had installed an electric lighting system. "I got this lighting plant chiefly to help the women and children, and to make them more contented to remain on the farm. Now they can go anywhere about the house at night and not be afraid. And it also saves me from some worry, for when they carried kerosene lamps about I was always afraid that sooner or later they would drop a lamp and set the house on fire.

"I charge my batteries only three times a week, using a two and a half horsepower gasoline engine. It requires only a few gallons of gasoline to run the plant a week.

"I have not only the house, but also the barns and part of the outdoors wired and supplied with fixtures. I have found it such a wonderful convenience to have light always available that I am putting it in a good many places where you do not often find it.

"For instance, here on my lawn I have put lights; one is on a post exactly in the middle of the lawn, and one is on the gate here. So when any of the family come here at night they do not have to fumble about the gate. They simply switch on this light and others, if they need them. We can thus use the lawn a great deal more than we otherwise would.

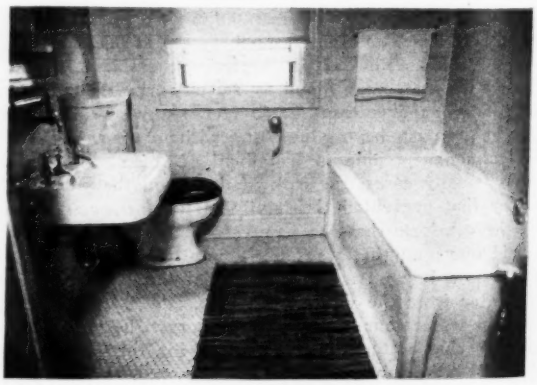
"Every building and shed has its lights. In the barn I cover the light bulbs with wire netting to prevent them being broken. Having electric lights in the barn has removed a great worry from my mind. It used to be that when I hired a new man I hated to trust him with a lantern in the barn. He might drop it and break it and set the barn on fire. The lights in the barn are a great improvement over the lantern, because I can turn on as many lights at a time as I need, while the lantern gave a very insufficient light a few feet away and cast many shadows. Just getting rid of the shadows is a great thing when you have any work to do in the barn. The lights are a great convenience also in the hog house and the chicken house.

"To me, the greatest thing about these modern improvement is that they make my wife and children and the hired man satisfied to remain on the farm. It is only this that makes it possible for me to run this 320-acre farm with the help of one man and my 15-year-old son. My plan is to modernize the farm as fast as I can."

Fire Protection on Farms Removes an Ever Present Menace.

On different trips that I have taken through farming communities I have often used a particular railroad. There was one farm house that I used to pass that particularly interested me. It was located near a hill top, a quarter of a mile from the railroad. It was a fine two-story house, painted white. Across the road from it was a big red barn. They made a fine showing against the background of the hill, green in summer and white in winter. But it was evidently without provision for fighting fire, which is true of nearly all farm houses.

One day, as I was passing on the train, I saw that the beautiful house was on fire. It was wrapped in flames from basement to roof. A great pillar of smoke leaned out over the barn, and from that pillar sparks and live embers were



Farmers are Buying Built-in Bathtubs and other Modern Equipment.

dropping. People were running about in an effort to save the barn, for they knew that the house was doomed. The scene was quickly lost to my view, but it was another illustration of the results of the almost universal lack of fire protection in the country.

Afterwards I visited another Illinois farm where fire protection had been provided. Two wind mills with elevated

tanks furnished part of the water and pressure, while below, in one of the buildings, was an engine and pumping equipment, so that in case of the exhaustion of the water in the elevated tanks the engine could be set at work to keep the water in the mains under full pressure. Lines of iron pipe had been laid to all the farm buildings. Hydrants had been placed wherever likely to be needed.

"We can throw a heavy stream of water over any building on the farm," said the man that was showing me about, and they had on that farm some of the biggest buildings to be found on any farm in this country.

Equipment for protection against fire is one of the things that will ultimately be recognized as a necessity on every farm.

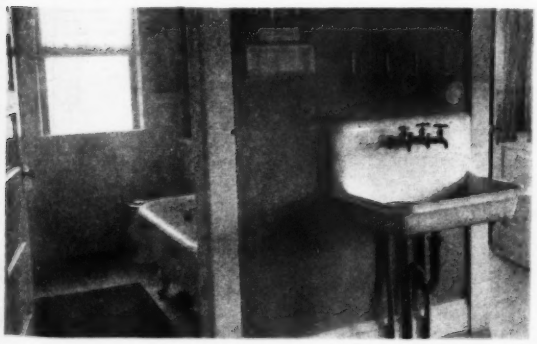
The Septic Tank Driving the Privy from the Farm.

There is only one side to the septic tank question. Every farm, unless it can be connected with some general sewer system, should dispose of its sewage by means of the septic tank. Properly managed, the septic tank will entirely destroy all germs of disease that get into sewage.

Running sewage into streams should not be thought of, and the time is coming when it will not be permitted by the public. It has been proved that contaminated streams carry disease, as the streams flow from farm to farm. Once a stream is contaminated it is a source of danger to the people on every farm through which the stream runs. Some of the large streams run for hundreds of miles through farm land, and in many parts, during the summer season, both children and older people swim. I know one girl that went in swimming in contaminated water, swallowed some of the water by accident ,and came down with typhoid fever. There are at least eight contagious diseases that are water borne.

The country should be healthier than the city, but the health records show that, in many instances, the country has more sickness than the city; and it is due partly to the lack of sanitary provision in the disposal of sewage. The old, open privy is in such bad repute that many cities and villages will not longer permit privies to be used. From open privies flies have spread many a contagious disease.

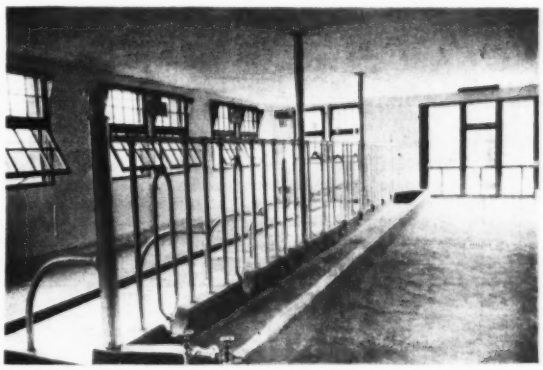
Septic tanks are generally situated several hundred feet from the dwelling, and the vitrified tile line that conveys the sewage to them can be extended to almost any distance that the grade of the land will permit, so that there is no danger of odors coming to the house. Moreover, the septic



Running Water and Plumbing Fixtures in Bathroom and Kitchen of a Modern Farm.

tanks themselves can be made as tight as desired, and the water from a septic tank is largely free from sewage.

I was once inspecting a septic tank that took care of the sewage of a population of 8,000. The sewer pipe ran for about two miles before entering the tank. The outflow from the tank looked like pure water as it passed into the big stream. About 100 feet below where the sewage was poured into the streams I saw a man fishing. I walked down to where he was and said, "One wouldn't think that a septic tank was pouring out its water 100 feet above here." The fisherman expressed his astonishment. He hadn't discovered it, which shows how harmless a septic tank may be,



A Piping System to the Barn Furnishes Fresh Water for the Animals and Enables the Farmer to keep the Barn Clean and Sanitary.

even though a thousand times larger than the ordinary farm house requires for the disposal of its sewage.

There are thousands of progressive farmers that have discarded the common privy and are disposing of their sewage by means of the septic tank. The service these tanks are rendering is an unanswerable argument in favor of making their use in the country universal.

Pipe Lines That Double Crops.

We are just at the beginning of a great movement for the installation of overhead watering systems on farms and on areas of smaller size than farms. Already a good many systems have been installed in different sections of the country. They have been tried at the experiment stations and approved. There are individual truck farms that have as many as 30 acres under this system of watering.

Some of the horticultural departments of our universities are using this system, both in and out of doors. At one university the professor of horticulture was showing me his overhead watering systems. He demonstrated first, one in the green house. Turning on the water, he filled the whole inside of that section with a fine spray, which fell on the plants without displacing a single particle of soil.

"This is a great saver of work," said he. "It used to take a man most of a day to water our plants in the green house. Now he spends only 15 minutes a day at this work. Then it waters far better than a man with a hose-can water."

In the garden outside of the green house was another system, with lines of pipes running eight feet above the ground and 50 feet apart. The professor turned on the water, and from the different lines of pipe burst forth a cloud of mist that settled heavily on the plants below it and was soon soaking both plants and ground like a fine, silent rain.

"This has enormously increased the production of our gardens," said he. "A few miles from here a market garden company has covered several acres of land with this overhead system. They say it doubles their crops of vegetables every year.

The agriculturist of another experiment station said to me, "We never publish the full results that we get in our pot culture experiments, because people would not believe us if we did. The experiments in the pot culture of oats, for instance, have given us yields up to 170 bushels per acre. This is chiefly because in pot culture we can control the water supply."

(Continued on Page 474.)

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

LAYOUT OF "BEST" SEPTIC TANK.

Editor "Domestic Engineering":—Will you please print a layout of the best septic tank you know of?

I have one to install where the discharge water must be as pure as is possible to make it.

New Mexico. M. E. H.

We don't know of any septic tank that is best for every kind of a job, any more than we know of an auto that is best for all purposes.

If you have passengers to run 200 miles in quick time you would, of course, prefer a big "comfy" high speed car.

If you had to haul 5 tons of freight and no passengers that 200 miles you would use a big, strong, durable motor truck.

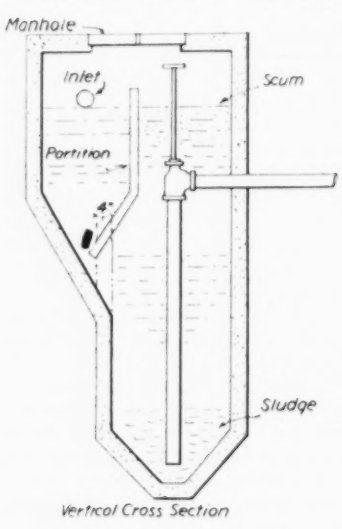


Fig. 1.

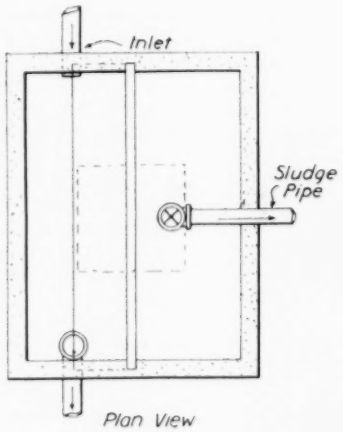


Fig. 2.

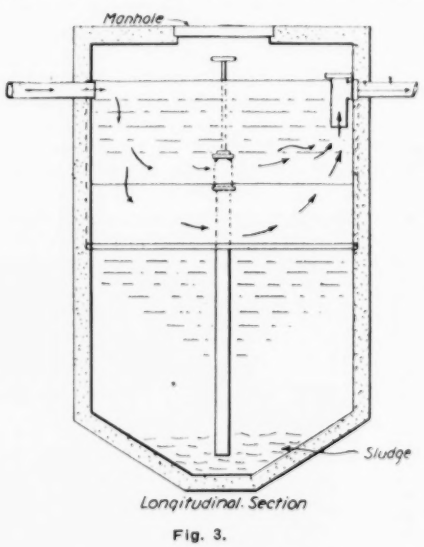


Fig. 3.

Or, if you had to get an auto to plow a big tract of soft land we think you would prefer a farm tractor to the high speed car, or the lumbering motor truck. Each is best for its own particular service.

It's the same way with septic tanks and sewage disposal works. The number of persons to be served, the abundance or scarcity of water, the conditions of ground levels, strata, porosity, etc., also the available source, or point of disposal, all have to be considered carefully.

Then a septic tank, filter, etc., are used according to the requirements of the case.

Therefore you see we cannot point to any particular septic tank and say—"that is best."

We can, however, show you something that is highly thought of by our trade, particularly in the central states, where sanitation has reached a high standard.

Fig. 1 is a vertical section through a septic tank built somewhat on the old Imhoff principle.

Fig. 2 is a plan view of the tank showing the relative positions of the inlet, the outlet, and the sludge pipes. The manhole is shown by dotted lines.

Fig. 3 is a longitudinal section through the tank, showing inlet, outlet, sludge pipe, baffle board, etc.

Study these sketches a minute then follow us in a description of the operation.

Referring to Fig. 1 observe that the tank has a partition, or baffle, which slopes to the left at the bottom, thereby dividing the tank into two water holding compartments. Now look at Fig. 2 and note that the sewage enters at one end of the smaller or left hand compartment in Fig. 1, and leaves at the opposite end.

Examine Fig. 3 and note that the inlet and outlet pipes are on the same level. Also that the inlet discharges straight on the surface, while the outlet has a tee dipping down into the water. Some engineers prefer a tee dipping down at the inlet also. The sewage flows through this compartment only. Its direction of flow is shown by arrows in Fig. 3.

Now note that there is an open slit running the full length of tank and below the partition. It is about 4 inches wide. All solid matter in the sewage is supposed to settle and slide down through this slit. Then it falls into the deeper compartment shown in Fig. 1. There is no sewage flow through that

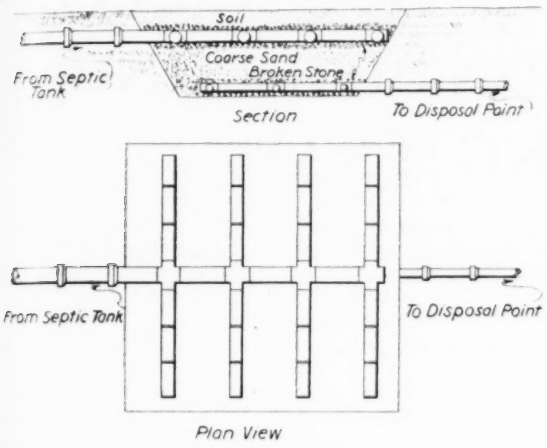


Fig. 4.

compartment. It is only a compartment to receive the solids and retain them during their period of putrefaction. It prevents the solids from putrefying in the other chambers and fouling the flow through water unduly.

The bottom of smaller chamber slopes and is smooth to facilitate the sliding of the solids. The partition is so arranged at the bottom that gases rising from the sludge will not get up into the small compartment. You note the 4 inch overlap in Fig. 1.

The bottom of sludge pit is sloped down to center where the sludge pipe hangs with an open mouth.

The valve or sludge pipe is operated by a wheel handle extended up near manhole. The sludge pipe may discharge into a regular sludge bed, or into some other convenient place.

In drawing off the sludge from bottom just open the valve and the hydraulic head above the valve level will drive the sludge out through the pipe. It will stop running as soon as the water is level with the valve.

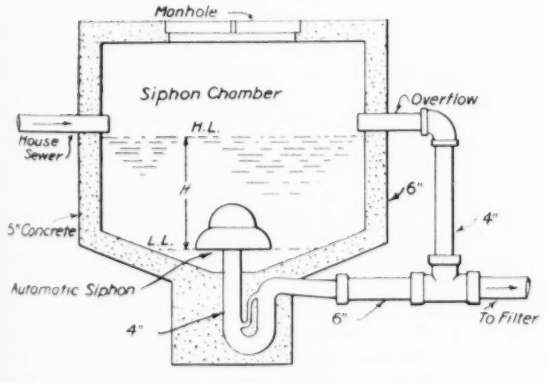


Fig. 5.

Note that the manhole is conveniently located for access to both chambers, also to the sludge valve.

That septic tanks ordinarily should give good results in most cases where a fairly good separation of solids is required, and where the effluent is required to be reasonably clear. But the effluent is not yet fit to go into rivers, etc. It should be filtered or otherwise treated.

In Fig. 4 we show by plan view and section an underground sand filter that should do very good work in purifying the sewage by holding back the major portion of the solids that may have escaped from the tank.

The effluent flows into top of filter through a number of field tile pipes in such a manner as to be evenly distributed over the filter bed. Then it percolates down through the filter bed and is collected at the bottom by a series of underdrains which carry away the filtered water and deliver it to the available point of disposal.

But in using a filter it is advisable always to apply the sewage to it in periodical dozes so that more satisfactory results will be obtained. That is usually done by the intervention of a sewage siphon between the septic tank and the filter.

Such a siphon, as dozing chamber, is shown in Fig. 5. The effluent from septic tank enters it intermittently. Sometimes in small, sometimes in larger streams. Sometimes it is a prolonged trickle.

The dozing chamber fills up to the high water line, H. L., when the siphon begins to operate. It promptly discharges the contents over the filter bed. The siphonage stops the instant the water line reaches L. L. or low level.

In proportioning tanks of this kind the smaller tank is the main one. This may be made for a 10-hour retention of the sewage, or thereabout. In other words, its capacity may equal about one-half of the sewage discharge of 24 hours. The size of the other chamber is less important. It should be large enough to require cleaning out not oftener than once a year for domestic work. The length of travel from inlet to outlet of tank is important. For domestic work it may be about 6 feet and for domestic work, or short tank work, the inlet can be improved by turning it down with a tee.

Now we think we have given you some of the most salient features of a good system that can be altered to suit almost any conditions.

CONTROLLING ONE AND TWO-PIPE STEAM JOBS.

Editor, "Domestic Engineering":—In issue of July 31st, "Domestic Engineering," there appeared copy of a "Lecture Delivered by Charles V. Haynes Before the Philadelphia Master Plumbers' Association" under the caption of "The Advantages of Vapor Heating" and great credit is due him for the able and clear manner in which the subject was presented. However, there is one statement to which we wish to take exception, that being the last paragraph of first column, page 220, reading as follows:

"The average heating system, such as a one or two-pipe steam job would be unwieldly in the hands of the owner, and next to impossible to control an even and comfortable temperature, as there is no method of control, it being necessary that the radiators be turned entirely on or entirely off, which would give discomfort and waste of fuel."

In reply to the above statement I wish to state that there is a method of control for one and two-pipe steam systems commerically known as the "Modulator" and which controls the number of sections of the radiator the user may desire to heat. The device is the invention of the writer and is manufactured by the M. Frank Hutchison Co., Inc., Washington, D. C., and is fully described in a catalog issued by the above company, a copy of same being herewith enclosed.

In conclusion I wish it distinctly understood that I do not doubt Mr. Haynes' sincerity when he made the statement, as I feel sure the "Modulator" was unknown to him at that time, possibly because it had not been advertised in the "Domestic Engineering." Yours truly,

M. Frank Hutchison Co.,
Woodward Building,
Washington, D. C.

COMPARATIVE EFFICIENCY *of* VENTED HALF-S TRAPS *and* NON-VENTED ANTI-SIPHON, NON-SIPHONING *or* RE-SEALING TRAPS

An Exhaustive Investigation Conducted by A. E. Hansen, Sanitary Engineer, New York, for The Master Plumbers' Association of New York City

(Continued from Page 317 in the August 7th Issue.)

While similar comparative tables can readily be prepared of the other anti-siphon traps tested, this would seem unnecessary in view of the charted curves of the test records which are easy of interpretation and comparison for any particular trap under any particular test condition. In general it will be found that the other anti-siphon traps

A. 4-Inch Soil and Vent Stack Openings.

Name of 1½-inch Traps.	Flush in gal. pr. min.	Rate of Seal retained by traps after 1st 5 second flush.	2nd 5 second flush.	3rd 5 second flush.
Geco.	50	4.25″	4.25″	4.25″
U. S. Housing Corp.	50	3.38″	3.38″	3.38″
Vented ½S	50	2.25″	2.25″	2.25″
Geco.	100	3.63″	3.50″	3.32″
U. S. Housing Corp.	100	2.70″	2.58″	2.50″
Vented ½S	100	2.25″	2.18″	2.06″
Geco.	150	2.75″	2.50″	2.50″
U. S. Housing Corp.	150	0.25″	0.08″	0.00″
Vented ½S	150	2.00″	1.82″	1.75″
Geco.	300	0.15″	0	0
U. S. Housing Corp.	300	0	0	0
Vented ½S	300	1.68″	1.62″	1.62″

B. 1⅛-Inch Soil and Vent Stack Openings.

Geco.	50	3.75″	3.68″	3.68″
U. S. Housing Corp.	50	3.12″	3.0″	3.0″
Vented ½S	50	2.25″	2.18″	2.12″
Geco.	100	3.12″	2.90″	2.82″
U. S. Housing Corp.	100	2.50″	2.38″	2.25″
Vented ½S	100	2.12″	2.0″	1.88″
Geco.	150	0.50″	0.32″	0.25″
U. S. Housing Corp.	150	0.08″	0	0
Vented ½S	150	1.88″	1.75″	1.75″
Geco.	300	0.08″	0	0
U. S. Housing Corp.	300	0.00″	0	0
Vented ½S	300	1.68″	1.62″	1.62″

C. 1-Inch Soil and Vent Stack Openings.

Geco.	50	3.82″	3.75″	3.75″
U. S. Housing Corp.	50	3.12″	2.92″	2.92″
Vented ½S	50	2.25″	2.12″	2.00″
Geco.	100	2.75″	1.32″	1.05″
U. S. Housing Corp.	100	2.00″	1.18″	0.42″
Vented ½S	100	2.00″	1.88″	1.82″
Geco.	150	0.38″	0.32″	0.18″
U. S. Housing Corp.	150	0	0	0
Vented ½S	150	1.75″	1.68″	1.62″
Geco.	300	0	0	0
U. S. Housing Corp.	300	0	0	0
Vented ½S	300	1.62″	1.62″	1.50″

D. ⅞-Inch Soil and Vent Stack Openings.

Geco.	50	2.95″	2.80″	2.75″
U. S. Housing Corp.	50	2.38″	2.30″	2.25″
Vented ½S	50	2.12″	2.0″	1.88″
Geco.	100	0.35″	0	0
U. S. Housing Corp.	100	0	0	0
Vented ½S	100	1.88″	1.75″	1.75″
Geco.	150	0	0	0
U. S. Housing Corp.	150	0	0	0
Vented ½S	150	1.38″	1.32″	1.18″
Geco.	300	0	0	0
U. S. Housing Corp.	300	0	0	0
Vented ½S	300	0.75″	0	0

exhibited similar absence of siphonage resisting powers under conditions which they should be capable of withstanding as successfully as did the vented ½ S trap. (The charts mentioned are so large that they cannot be reproduced herewith.—Ed.)

A brief study of the preceding tabulations, which may be called typical of practically the entire field of anti-siphon traps (except those which were found so weak in preliminary tests as to be excluded from consideration) shows that out of 16 series of test runs (each run having 3 flushes) under varying conditions of flushing rates and stack openings, the Geco trap seal has a record of complete breakage 6 times, or 38 per cent and a record of ½-inch or less trap seal retained 8 times, or 50 per cent; the U. S. Housing Corporation of complete breakage 9 times, or 56 per cent and of ½-inch or less trap seal retained 10 times, or 62 per cent; and the ½ S vented trap of complete breakage and of ½-inch or less trap seal retained only once, or 6 per cent, and that under the most severe conditions purposely imposed to determine the limit of resistance of the vented ½ S trap.

No competent, unbiased sanitarian can consistently claim, I believe, that a ½-inch trap seal is sufficient. The wave action which frequently occurs persistently in traps water seals, due to wind, tides, and other outside influences, would quickly and completely destroy such a small seal or send puffs of sewer air through it, and no plumbing system having such small trap seals would withstand even a ridiculously lax smoke test.

It will be noted further that the least severe conditions under which the Geco trap seal was destroyed were those having a 1⅞-inch soil pipe aperture and a 150 gallon per minute flushing rate; the U. S. Housing Corporation trap yielded under the still less severe condition of a 4-inch stack opening and a 150 gallon per minute flushing rate; the vented ½ S trap seal was broken only with a 9/16-inch stack opening and a 300 gallon per minute flushing rate.

A few words should be said at this point about the degree of severity of the tests to which the traps were subjected. To me they do not appear as excessively severe, but intensely practical, for the following reasons:

1. The flushing rate of 150 gallons per minute (equivalent to 2½ gallons per second) represents the simultaneous discharge rate of only 2 siphon jet or siphon action water closets, supplied with the usual type of flush valves which operate at a rate of about 1 gallon per second. The actual rate of discharge from a water closet into the soil pipe exceeds the inflow rate of 1 gallon per second into the water closet bowl, since the latter discharges during its action not only the inflow, but in addition thereto its own contents. The outflow is thereby increased over the inflow rate by about ¼ gallon per second, and the maximum simultaneous discharge rate of two water closets becomes actually 2½ gallons per second.

2. The decrease in area by hoarfrost of a 4-inch soil pipe to an opening 1⅞-inch diameter may reasonably be expected after extended cold weather periods.

3. Since the traps tested were in new and thoroughly clean condition their siphonage resisting strength was at its maximum. It is decreased materially by fouling of the traps in use, and due allowance must therefore be made in any similar test of clean traps to provide for this future weakness of traps after fouling. There are no records available to show the degree of loss in siphonage resisting power of traps by fouling, so that no definite estimate can be made of the proper increase in testing requirements.

4. No engineering structures are generally considered as being properly or competently designed, unless they have a factor of safety which is usually not less than 1.5 nor more than 4. I need not go into the fields of structural engineering to show this fact; in the plumbing engineering high factors of safety are constantly allowed by all of our able men and prescribed by all of our progressive cities. Plumbing pipes and fittings, their sizes of water, soil, waste, and vent pipes, the methods of joining them, are all in excess of their actual needs; every able architect, engineer and health official will agree that the water and smoke tests of plumbing work are most essential to secure good work, and yet no soil, waste or vent pipe is ever exposed to anywhere near the water or sewer air pressure in actual practice, to which it is exposed in this official preliminary water test. It is a matter of wisdom always and invariably to provide for a factor of safety, and it is fully as necessary to keep sewer air from entering the building through a siphoned trap, as it is through leaky pipe joints.

5. It was established that under the testing conditions as described to have existed at 366 West Broadway, the breaking load of the 1½-inch ½ S trap, vented by a 1½-inch continuous vent, occurred with a 9/16-inch stack opening and a 300 gallons per minute flushing rate. No anti-siphon trap has developed this strength within reasonable limits. The ½ S vented trap has been and is now accepted country wide as the standard requirement; no article offered in substitution can hope to successfully compete with it, unless it proves itself equally as strong in the most vital essential, namely, power of resistance to siphonage.

6. The depth of seal of the anti-siphon traps exceeds that of the ½ S trap tested under identical conditions with one exception, the Cudell trap. Generally, this excess is quite large, as for instance in the U. S. Housing Corporation trap by 61 per cent, and in the Geco trap by about 90 per cent. It is well known that an increase in depth of seal of a trap will increase its resistance to siphonage. Hence, if the vented ½ S trap had had the same depth of seal as the anti-siphon traps tested, the results would have been more comparative as to actual siphonage resisting power of the two types of traps.

For this reason I also prepared a series of curves, presented as Appendix 3, sheets 1 to 10, showing a comparison of the percentage losses of seal of each of the anti-siphon traps with the vented ½S trap. Each sheet refers to only one of the anti-siphon traps, and the percentage losses of this trap are shown in full lines, while those of the vented ½S traps are indicated in dash lines. (The size of these sheets prevents us from reproducing them here.—Ed.)

Referring to Appendix 3, sheet 1, which shows the comparison of the percentage losses of seal of the Geco trap with the vented ½-S trap, it will be found that this sheet is divided into 4 sets of curves, each set covering one of the four rates of flushes used in the tests. In each set are plotted the curves representing the percentage losses of seal with the different sizes of stack openings, one curve being for each size opening, and each curve being designated with the size of opening for which it represents the test results. Bearing in mind that the full line represents always the anti-siphon trap and the dash the ½S trap seal losses, it is apparent at a glance that, wherever the dotted ½S trap line for any particular size stack opening is on the left of the full anti-siphon trap line for the same size stack opening, the vented ½S trap had a smaller percentage loss of seal than the anti-siphon trap, and vice versa.

Further, on the left of each set of curves will be found the words "Discharge Period in Seconds", which is divided into 5, 10, and 15 second periods and represents the three successive flushes of 5 seconds each. As a concrete example, to determine the comparative percentage losses of seals of the vented ½S and the Geco traps, when the discharge rate was 2½ gal. per second (150 gals. per Min.)

(Continued on Page 472.)

WHAT NATIONAL TRADE EXTENSION MEANS

A Cooperative Effort by the Dealers and Contractors to Increase Production, Eliminate Waste and Supply the Public with the Best Appliances, Efficiently and Economically Installed

By D. F. Durkin, Jr.

President of the National Association of Master Plumbers, Inc.

D. F. Durkin, Jr.

THE real purpose of the National Trade Extension Bureau of the Plumbing and Heating Industry is co-operation between dealers and contractors to increase production, eliminate waste, and supply the public with the best appliances efficiently and economically installed.

Having successfully passed through its organization period beset with the handicaps occasioned by the World War it is now prepared to carry out its policy and to give service both to its members and to the public. There need be no fear that the work of this bureau properly conducted will not serve a national want and, therefore, receive encouragement from all interests striving for the settlement of business unrest, and the promotion of national prosperity.

It shall be our purpose in this article to place before our readers the position that each of the groups composing this bureau occupies,—its relation to the others and to the public, and how each may receive a profitable return without infringing upon the rights of the others.

In the first group are the dealers—comprising the manufacturers and jobbers in plumbing, heating and water supply appliances. It is their aim to have their goods known and used by the public, and as they sell only merchandise, they require the assistance of the second group—the contractors—to install these goods and make them a finished product. Right here the work of increased production, the elimination of waste and efficient and economical installation have their places. In the past we have had, on the part of the dealers, the individual advertisement, the individual sales force and the curtailed territory, all of which were attended with waste, restricted production and poor installation.

The individual advertisement, sometimes poorly worded or printed, often offended those to whom it was addressed and failed of its purpose. The reason for this can easily be ascribed to the fact that the writer failed to gauge the thoughts of his readers, having no centralized bureau from which this information could be obtained.

Eliminating Wasteful Methods.

The individual sales force also had its waste and mistakes due to lack of proper training. The salesman was a law unto himself, often better known than the house he represented, building what he termed a personal following and swinging his trade at will from one dealer to another as he traveled from place to place. The dealer was dependent almost entirely upon him to sell his goods to old customers and to create new ones, and very often the new field was entirely neglected because it was easier to sell in the old. This indirectly caused a decreased production and an undeveloped field. Overstocking shelves, misrepresenting goods, creating a spirit of pessimism (by narrating the difficulty of securing goods) are some of the evils and wasteful methods of this system of individual salesmanship.

In the past a certain amount of waste was regarded as an unavoidable item of overhead. Now the tremendous increase in prices of even the cheapest articles makes it necessary for dealers to find a better and more economical method of marketing their goods and increasing the production to a point where it will bear a closer ratio to this increased overhead. We believe we have found the remedy for these evils in the bureau's individual advertisement feature which will curtail or eliminate them by centralized advertising properly prepared.

Individual salesmanship will be eliminated by a salesmanship properly trained from a central point and augmented by a large force of contractors receiving an education that changes them from disgruntled critics of an ancient business program to ardent supporters and, of necessity, trained salesmen in the industry represented. Of course, all will not measure up to the opportunities offered, but there will be a sufficient number to warrant the effort.

Helping the Contractor.

The second group in the bureau are the contractors, comprising the master plumbers and master pipe fitters, members of their national associations and, therefore, receiving the business training offered by the bureau. Their past methods were just as wasteful as were the efforts of the dealers. Let us consider briefly some of them.

The lack of business training and the opportunity of securing it,—the contractor drifting from the ranks of the mechanic into that of business man, qualified to install the job, but not to secure it, manage it or ascertain its cost. And then followed, as will often follow the lack of real knowledge—the disposition to trick, skimp the job, substitute the imitation for the real article and gradually drift into a position where all efforts are directed towards low prices at the expense of character, personality and service. The National Trade Extension Bureau will offer to this group the opportunity of learning the most approved methods of salesmanship and how to secure the job, office management, including

record keeping, organization, and directions for ascertaining the cost; including estimating, cost finding, etc. These modern methods must supplant the wasteful efforts of the contractors during the past, if they are ambitious of conducting a successful business, and the majority, realizing the opportunity, will take advantage of it.

Trade Press a Part of Bureau

There is another group associated with the bureau that has its own interests with its own returns, that can and does give service beneficial to the others. We refer to the trade press, comprising the men engaged in the publication of information applicable to the industry. They are vitally interested in trade advancement as their publications are dependent upon the success of the dealers and contractors by whom they are supported and whose interests they serve. They, therefore, are an important part of the bureau.

If our thoughts are correct regarding the inefficient methods of the groups more directly interested in this centralized effort at business building, in order to secure their support to the movement it should be necessary only to convince them that we have adopted the correct plans with the necessary organization for carrying them out. We shall, therefore, conclude this article with a short account of the bureau, its management and its methods.

Evansville, Indiana, is the home of the bureau. It might be located in any part of the country as its program applies to no particular section. Its management is vested in a board of directors consisting of dealers and contractors, who make its laws and look after its finances. Its offices and the carrying out of its plans are in charge of William J. Woolley, a master plumber and qualified expert in business building for the plumbing and heating industry. He has the assistance of men versed in salesmanship, office management, estimating, etc., and the required clerical force, office files, etc.

Reconstruction of Business Methods.

The organization,—collecting useful data, planning new ideas, creating new business and sending the results of their work to its members,—promises a reconstruction in our business methods with assured results to all. It would be the part of wisdom, therefore, that we try this new business venture and give it our support.

One of the groups, the National Association of Master Plumbers of the United States, has, at its convention in Pittsburgh, reasserted its approval of the bureau, repledged its support and appropriated one dollar per member from its funds as a contribution so that each member may receive the bureau's monthly service bulletin. This action is worthy of imitation. Give us a united support and we will build bigger business for you.

PLUMBING SECRETARIES' NATIONAL CONFERENCE.

By H. F. Baillet, Newark, N. J.

WHAT does the above title mean? Why a secretaries' association? It is a clearing house for secretaries connected with the National Association of Master plumbers, annual "get together and let's talk it over" for the many-sided activities of live secretaries of Master Plumbers' associations. For many years past it was quite the usual thing at National Conventions to find two, three or more secretaries from different parts of the country hob-nobbing and exchanging views and experiences of different phases of their secretarial work. All this, however, was desultory and while of much value to the secretary who had become a confirmed convention goer, much of its potential value was lost because of the limited circle who were known to each other and because of the loss of personal touch between conventions. The desire for closer and more continuous co-operation between secretaries has been expressed many times by different well-known men who have served their local and state associations in a secretarial capacity and who can realize the many false starts and enormous economic waste of lost or unnecessary duplication of effort, due to lack of the experience of the other fellow, who has traveled along the same road and has met the same pitfalls and stumbling blocks. However, such isolated efforts seemingly failed to impress national officers of the past. Probably because they failed of proper presentation as well as due to the fact that the national office was busy with many other important matters and did not therefore visualize the value of co-operative effort among secretaries.

In advance of the National Convention held at Atlantic City in 1919, National Secretary A. A. Zertanna advised a meeting of all local and state secretaries present. Such meetings were held, two in number and the participants expressed themselves as having profited thereby. To such an extent was this true that at the National Convention held in Pittsburgh in 1920 greater interest was shown in the movement. Four meetings were held in the interim of National Convention sessions. Aside from the valuable discussions and information disclosed this gathering of secretaries "started something."

They made a constructive effort along the lines of a permanent organization as a means of communication during the year, so as to keep in touch with what may develop of interest in the meantime, under the title of "Plumbing Secretaries' National Conference." It was decided to meet at the time and place of the next National Convention of Master Plumbers one day prior to the calling of the convention.

The membership fee in this conference is $5 for this year (to provide money for necessary printing and postage). Local associations of master plumbers are asked to support their secretary to this extent, and wherever practical are asked to send their secretary to the National Convention so that he may be able to attend the sessions of the conference.

It is an attempt of earnest workers to increase their efficiency and the value of their services to the local, state and National associations by and through co-operative measures. As such we believe the conference worthy of the support of the local associations and of the individual members.

The better secretaries we are, the better can we serve the interests of the associations—local, state and national!

Editor's Note.—In connection with the above interesting article, it will not be amiss to recall that the officers of the recently organized Plumbing Secretaries' National Conference are: President, H. F. Baillet, 48 Chapman Place, Irvington, N. J.; vice-president, W. W. Hughes, 1514 East Franklin Avenue, Minneapolis, Minn.; secretary-treasurer, E. F. Bohm, 608 The Arcade, Cleveland, O.

The New York Times recently stated that plans for only one apartment house and one dwelling were filed in Manhattan in July, compared with plans for five theatres, 115 garages and three loft structures, indicating that despite agitation for construction of dwellings the building trend was reflecting little interest in the housing situation. According to Tenement House Commissioner Mann, normal construction in New York is about 28,000 apartments a year, in addition to two-family houses and hotel apartments, but during the past four years average construction has dwindled to about 4,000 a year.

AMONG THE WHOLESALERS AND MANVFACTVRERS

NEW PLANTS AND ADDITIONS.

The Walker & Pratt Mfg. Co., of Boston, Mass., is constructing two additional buildings at its plant in Watertown, Mass., one 230x200 ft., and the other 92x55. The new buildings will cost about $150,000.

The Ruud Mfg. Co., Pittsburgh, Pa., is having plans drawn for a brick and concrete addition to its plant, as an extension to its foundry and machine shop.

The Harris Pump & Supply Co., Pittsburgh, Pa., has extended its capacity by the purchase of a two-story brick building located on Sidney Street.

The National Tube Co., Pittsburgh, Pa., is purchasing considerable ground in the vicinity of its McKeesport Works, and it is understood that the company contemplates the erection of a new building to cost more than $500,000.

The John Trageser Steam Copper Works, New York, has purchased the three-story building, with a one-story structure in the rear, adjoining its plant at 440-442 West Twenty-seventh Street, which will be used to increase capacity.

APPOINTS NEW ENGLAND REPRESENTATIVE.

The Uehling Instrument Co., 71 Broadway, New York, manufacturers of fuel economy equipment, announces that it is now being represented in the New England states by the Smith Engineering & Supply Company, 89 State Street, Boston, Mass., manufacturers' agents and engineers, specializing in power plant equipment. S. W. Smith, president of the latter company, was, until very recently, associated with the Uehling Instrument Company with headquarters in its New York office.

THE WORK OF THE RESEARCH BUREAU OF THE A. S. H. AND V. E.

Secretary C. W. Obert, of the American Society of Heating and Ventilating Engineers, in a letter from headquarters, 29 West Thirty-ninth Street, New York City, under date of August 20th, calls the members' attention to the second year's activities of the Research Bureau and the need for more funds, and states that the report on the work of the Research Bureau of the Society presented at the St. Louis meeting will make every member of the Society proud of the fact that it undertook this important matter involving the expenditure of over $20,000 a year for five years devoted solely to scientific research. He also calls attention to the fact that the bureau is entering upon its second fiscal year with the following program of research:

"Radiant Heat Loss From Steam Radiators; Heat Losses From Pipes Buried in the Ground; Circulation of Water in Hot Water Systems; Heat Losses Through Various Building Materials; Electrical Method of Testing Radiators; Infiltration Through Various Forms of Building Construction; Relation Between Outside Wall Temperatures and Dew-Point; Standardization of Dust Measurements; Checking Application of Heating Boiler Testing Code."

In conclusion Secretary Obert states: "This work is being undertaken largely for the benefit of the membership of the Society and therefore should be of direct interest to you. Has it proven of interest to you? Have you not benefited from the reports already published by the bureau? If so, your attention is called to the urgent necessity of assistance from the entire membership of the Society to maintain this activity. There is immediate need for additional funds in order to carry out the program that has been laid out by the committee."

SHORT OUTLET HORN ON CLOSET BOWLS.

Secretary George G. Dyer, of the Sanitary Potters' Association, Trenton, N. J., in a letter from headquarters dated August 16th, discussed the shortened outlet horn on closet bowls. The letter says:

"In a few sections of the country there appears to be considerable misunderstanding on this subject. There are two points we wish to particularly emphasize, first, the outlet horn has *not been eliminated*, but has been shortened, so that the bottom of the outlet is on a line with the base of the closet, and second, *the short outlet horn is not a new or recent idea.*

"For many years past the United States government regulations have required that all closet bowls used in government buildings should have short outlet horns, and several of the leading jobbers have had their highest grade closet bowls made in the same way. We do not suppose there is a plumbing contractor in the United States that has not installed a number of such fixtures, and some of them have installed many such fixtures. We, therefore, are entirely justified in stating again that the *short outlet horn is not a new idea.*

"Conditions, incident in a great measure to the World War, hastened the work of standardization in all lines of manufacture, and considerable progress has been made in the sanitary pottery industry toward curtailing the variety of fixtures manufactured. The pottery manufacturers did not adopt the idea of the shortened outlet horn on closet bowls until it had been recommended by the National Bureau of Standardization.

"In a letter to 'Domestic Engineering,' Major William C. Groeniger, president of the American Society of Sanitary Engineering, in referring to the installation of closets with either the long or the short outlet horn, makes the following statement: 'Without considering any new methods of making the joint between the closet and the drainage system I cannot see where there would be any difference.'

"We know of no reason why closet bowls with the shortened outlet cannot be installed in exactly the same manner as closets with the longer outlet. Any joint which the plumber has heretofore made which was gas-tight will unquestionably be equally as gas-tight with the short outlet closet. *The portion of the outlet horn which has been cut off never had anything to do with making the joint gas-light.*

"This association has not endorsed and does not recommend any particular floor flange."

"George G. Dyer, Secretary,
"Sanitary Potters' Association."

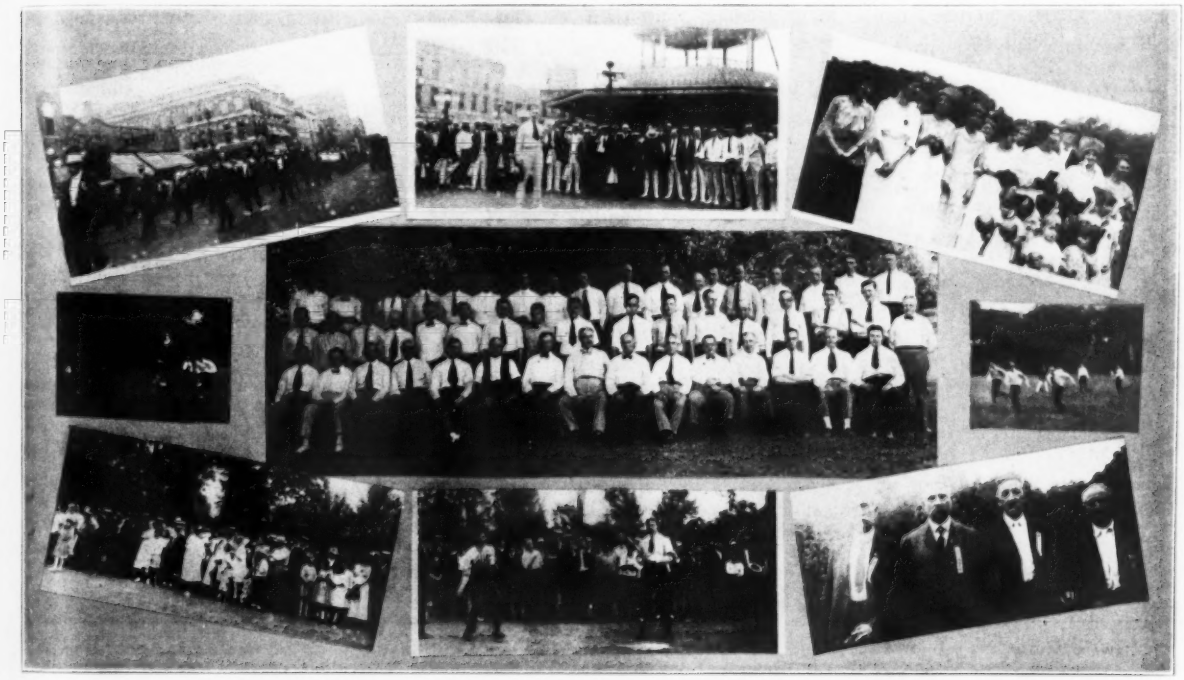
H. MUELLER MANUFACTURING CO.'S ANNUAL OUTING AND SALES CONVENTION.

The H. Mueller Mfg. Co., Decatur, Ill., held it annual outing and basket picnic on Saturday, August 21st. The employes and their families to the number of about four thousand gathered at the company's plant before 9 a. m. and headed by the Mueller band and officials of the company paraded through the business section of the city to a point where they boarded street cars for Fairview Park, where a well-arranged program awaited them.

The day was not what one would call ideal picnic weather, but in spite of the showers and clouds a spirit of gaiety and enthusiasm prevailed. As is their custom, the Mueller brothers, Adolph, Robert, Philip and Fred, mixed freely with their employes in a very democratic manner. Adolph Mueller, president of the company, addressed the entire gathering in the park pavilion after the noon lunch, and later in the day took a prominent part in a minstrel given by the salesmen. In his address, Mr. Mueller spoke of the importance of co-operation, and told of the many opportunities for advancement for those who really apply themselves and try to improve their positions. He told of the wonderful growth of the concern, bringing out many interesting facts in illustrating the value of co-operation. The day's program consisted of many kinds of games and contests and there were enough of them to give every picknicker an opportunity to take part.

Mueller Salesmen from all sections of the country attended the outing and took an active part in the sports. In fact, the indoor baseball game was as lively an affair as any sales organization ever took part in. The salesmen were divided into two teams of ten men each, the Reds going down to defeat by a score of 9 to 8. The opposing team, the Greens, were ably assisted to their victory by the decisions of Umpire Heinrichs. Although the game was scheduled to be only five innings, an extra inning was necessary to determine the winners. Many thrills and exciting plays marked the game, but probably the most important feature of the day was the gallant slide made for home by T. F. Leary, manager of the San Francisco branch.

A black face minstrel, composed of salesmen, was staged late in the afternoon, and was declared a big surprise by the gathering. With J. H. McCormick as interlocutor and Bob Collins and Bill Jett as end men, the affair was full of fun. A touch of romance was worked into the show, and Charley Haas, taking the part of Topsy, proved to be a very fickle gal. Adolph Mueller sang "Old Black Joe." E. E. Powell was heartily applauded when he sang "Just Like a Gypsy." The minstrels closed with a comic tug of war and a blind-folded boxing contest.



The Annual Outing of the H. Mueller Mfg. Co., Decatur, Ill.—Top: Part of the Parade Through the City, Waiting for the Cars to the Picnic Ground after the Parade, and a Group of Department 30 with Some of Their Small Folks. Center: The Officers of the Company and the Salesmen; Views of the Men's Race.—Bottom: Watching the Races; the Salesmen's Baseball Game, with Evans at Bat and Kirchner Catching; Four Men Who Have Served a Total of 145 Years with the Mueller Company—Messrs. Zetterlind, Scheuermann, Pease and Screeton.

The Mueller band furnished good music throughout the day, as well as for the dancers. An open air motion picture show was an added amusement for the evening, and brought to a close a most successful outing.

The Mueller Sales force, which consists of more than forty men, were the guests of the company at their three plants in Sarnia, Port Huron and Decatur, for the ten days previous to the outing. Mixing business with pleasure, a salesman's school was conducted where the men were shown through all the branches of the industry, and where they were imbued with pep, confidence and more of the Mueller spirit.

The company's salesmen also held their annual convention in Decatur during the week ending August 21st. One of the entertaining features of this conference was a lawn party given by Mr. and Mrs. Adolph Mueller at their home. One hundred and sixty-five guests including the

salesmen, and department heads, foremen of the plant and their wives, attended. This affair was declared to be the most pretentious ever given by the hosts, and the guests voted it a perfect success.

The officers, the salesmen and department heads attending the conference were: Philip Mueller, Fred B. Mueller, Robert Mueller, Adolph Mueller, F. W. Cruikshank, W. N. Dill, T. F. Leary, J. W. Simpson, W. R. Gustin, W. F. Aaron, P. L. Bean, R. E. Collins, C. H. DuBois, J. J. Evans, C. T. Ford, W. B. Ford, Ralph Gumaer, C. J. Haas, W. C. Heinrichs, W. F. Hennessy, W. L. Jett, F. V. Johnson, R. E. Kirchner, C. E. Lincoln, J. L. Logsden, H. L. Marker, L. S. Masters, W. F. McCarthy, J. H. McCormick, J. D. McGauly, R. L. Moore, H. D. Nash, E. E. Pedlow, E. E. Powell, J. F. Riley, L. M. Ross, H. V. Seevers, O. H. Sharlock, E. H. Shimer, J. P. Stenner, Geo. F. Sullivan, Ivan Van Haaften, L. H. Burleigh, C. H. Laughlin, James Judge, Robert Binton, Robert Whitehead and C. N. Wagenseller.

DELAWARE VALLEY GOLFERS PLAY AT WHITE MARSH.

The August meeting of the Dalaware Valley Trade Golf Association was held at the White Marsh Country Club, Chestnut Hill, Pa., on August 18th, with thirty-six members in attendance. The weather conditions were not as good as on former occasions because of excessive heat, but regardless of this, the association had one of its largest turnouts. The afternoon play was interrupted by a very severe thunder shower and several foursomes were unable to complete their game. Frank Newton won the first prize for the morning play, and Joseph Dallett secured second prize. In the afternoon, the play for the best ball foursome resulted as follows: First prize, Fred Allen and P. J. Faherty; second prize, G. B. Strausner and B. H. Deacon, Jr.; third prize, A. A. Tomlinson and William E. Tinker. James E. McArdle acted as host of the day, and, due to his excellent arrangements, a most enjoyable time was had. C. L. Weber, Tom W. Cooper, Fred K. Dibley and John A. Campbell made their debut at these popular meetings.

Morning Play.

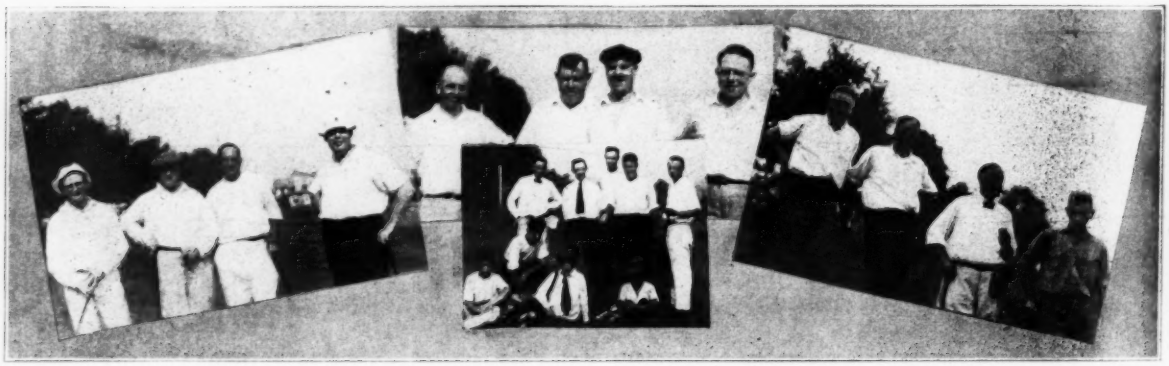
	Gross	Handicap	Net		Gross	Handicap	Net
J. Dallett	93	15	78	H. S. Maddock	117	16	101
W. G. Titus	94	10	84	F. Allen	—	—	—
George Bell	—	7	—	Gilbert Barker	—	—	—
T. Powers	111	17	94	Phil Faherty	116	35	81
W. G. Culbert	117	18	99	J. Bitzer	134	35	99
C. J. Hunter	99	10	89	H. J. Kleinman	95	14	81
F. G. Newton	111	35	76	C. Weber	172	35	137
R. C. Bolsinger	128	28	100	H. Murray	125	30	95
E. S. Aitken	93	10	83	Charles Hackett	—	—	—
J. A. Campbell	119	25	94	Bill Tinker	—	—	—
A. M. Maddock	104	20	84				

Afternoon Play.

	Gross	Handicap	Net
Bell and Pary	88	7	81
Titus and Dallett	90	10	80
Bridgman and McArdle	105	20	85
Fogwell and Powers	98	17	81
Tomlinson and Tinker	97	18	79
Hackett and Oliver	135	35	100
Bolsinger and Newton	Rained before they finished.		
Dows and Shelmerdine	Rained before they finished.		
Deacon and Straussner	99	22	77
Allen and Faherty	104	30	74
Robinson and Aitken	Rained before they finished.		
Campbell and A. M. Maddock	Rained before they finished.		
Kleinman and Hunter	Rained before they finished.		
H. S. Maddock and Culbert	Rained before they finished.		
Barker and Bitzer	Rained before they finished.		
Murray and Weber	Rained before they finished.		

WESTERN TRADE GOLFERS TO PLAY AT RIVERSIDE.

The members of the Western Trade Golf Association will have the pleasure of playing at the Riverside Golf Club, Riverside, Ill., on Tuesday, August 31st, arrangements having been made by former Captain Paul Blatchford. This will be the association's first meet at this course and a fine time is anticipated. Much interest is attached to this meet with the announcement that a non-electric vacuum cleaner, donated by Dick Collings, will be played for in a blind bogey, in addition to the regular prizes. Thomas P. Wade and A. J. Ewing will fight for the Association Cup, which they tied for at the Harlem meet, while the other extreme will be the center of activity between E. C. Garrity and H. M. Algeo for the Duffer's Cup. It has been our pleasure to see the trophies that have been put up by Captain E. W. Sanborn and Vice-President Wilmer Wickersham. Both are of sterling silver, and the men who succeed in winning them will have something to be proud of. This season has been one of the finest in the history of the association, and the remaining three or four meets will be anticipated with no little enthusiasm.



Delaware Valley Golfers at Whitemarsh Country Club, Chestnut Hill, Pa.: Left to Right, C. W. Hackett, A. G. Tomlinson, W. E. Tinker and Wm. H. Oliver; George Bridgman, Jim McArdle, J. C. Fogwell and T. H. Powers; H. S. Maddock, W. G. Culbert, H. Kleinman and C. J. Hunter. Center Group, with Caddies, H. Deacon, Jr., Phil. Faherty, Fred Allen, J. C. Straussner and Robert Burns.

Shippers of all classes of freight are preparing to protest against the addition of a penalty of $10 a day to the regular demurrage charge for delay of all open-ton cars and of all other cars loaded with fuel beyond forty-eight hours

Personal Mention

W. P. Powers, president and founder, thirty years ago, of the Powers Regulator Co., Chicago, was recently the recipient of a beautiful silver pitcher and tray presented by those of his employes associated with him ten years or more in the development and management of the business. The presentation speech was made by L. T. Bowmann, who has been with the company twenty-seven years. Mr. Powers, who is over 70 years of age, and Mrs. Powers recently attended the commencement exercises of the University of Wisconsin, Mr. Powers attending specially for his class reunion, being one of its two surviving members. He graduated with the class of '60. He also represented the Los Angeles Alumni Association of his Alma Mater on this occasion.

George A. Cunningham, president of the Never-Split Seat Co., Evansville, Ind., was in Chicago last week en route to a summer resort in Michigan, where he plans to spend two weeks seeking the elusive fish.

W. Woodward Williams.

W. Woodward Williams, vice-president and general manager of the Reading Iron Co., Reading, Pa., has resigned to become assistant to the president of the Pittsburgh Gage & Supply Co., Pittsburgh, Pa. Mr. Williams graduated from Harvard University in 1905 and in the fall of that year went to work for the Carnegie Steel Co., with which concern he was identified for a period of six years. Later he became associated with the Bourne-Fuller Co., Cleveland, in its Pittsburgh sales office, later becoming manager of that branch. In 1914, Mr. Williams joined the A. M. Byers Co., Pittsburgh, first as general manager of sales and afterwards became general manager of the company, remaining with the company until he joined the Reading Iron Co., about a year ago.

N. A. Henwood, vice-president and general manager of the Commonwealth Brass Corporation, Detroit, Mich., was in Chicago this week on business.

C. E. Burnett, president of the Burnett-Larsh Mfg. Co., Dayton, O., has been spending the month of August at Round Lake, Hanover, Mich. It is reported that he and his family have disproved the old theory that fish do not bite in August.

D. H. Bowlzer, sales and advertising manager of the Central Brass Mfg. Co., Cleveland, O., announces that its plant, which was destroyed by fire about four months ago, has been entirely rebuilt and re-equipped so as to increase production. A convention of the company's salesmen was held in Cleveland, August 26th, 27th and 28th. The meeting was held to enable the men to get acquainted with the new plant.

Peter M. Munn, assistant secretary of the Chicago Master Plumbers' Association, is enjoying a well-earned three weeks' vacation. He has gone to Idaho, the scene of many pleasant vacations in the past, and the change of climate and surroundings will prove most beneficial to "Pete."

John S. Nicholl, president of the Riverside Boiler Works, Cambridge, Mass., is some tennis player, as well as a golfer. He removed all possible doubt along this score last week when he appeared in the National doubles championship at the Longwood Cricket Club at Brookline, Mass., along with Wallace F. Johnson, R. Norris Williams 2nd, William T. Tilden and other tennis stars. Mr. Nicholl did not win the championship but he and his partner, Woodbury Rand, established a record in the first round when they met and defeated Russell W. Baker and E. V. Page in a match which went 72 games and required four full hours to complete. It took five sets to decide the winners, the final set running to 20-18, a record for the national doubles. The score of the match was 3-6, 6-3, 2-6, 6-2, 20-18. In the second round of the tournament Mr. Nicholl and Mr. Rand had A. Yencken and L. E. Mahan as opponents and were defeated in a four set match 6-0, 6-0, 1-6, 6-1.

C. A. Kuebler, sales manager of the Burnett-Larsh Mfg. Co., Dayton, O., who was taken ill in Pittsburgh during the session of the thirty-eighth annual convention of the National Association of Master Plumbers in June, and later underwent an operation, is sufficiently recovered to be back on the job, and reports that within a few days he will be fit for another hundred years or more providing "the next hundred years aren't the hardest."

Jeremiah Sheehan, of St. Louis, Mo., past president of National Association of Master Plumbers, is recovering from a serious attack of appendicitis, which affected him Sunday, August 15th, the day following the annual picnic of the St. Louis Master Plumbers' Association. He was confined to the Mullanphy Hospital, where he rallied nicely from the shock, and his numerous friends throughout the country will be happy to learn he is progressing satisfactorily and will be around again soon.

TRADE LITERATURE

Catalogs of Kelly Controllers.

Two catalogs have just been issued by the Kelly Controller Co., 175 West Jackson Boulevard, Chicago, Ill., descriptive of the company's high and low-pressure controllers. The former catalog has eight pages, and the latter twenty-two pages, each catalog measuring 3¾x9 inches. The low-pressure regulator is a safety device that is readily installed for the purpose of preventing cracked sections in heating boilers, and to save time and money by preventing explosions, repair bills and shutdowns. The catalog shows the controller itself in detail and how it is attached. The high-pressure controller is a simple safety device of unusual range that serves as a non-return valve, positive stop valve, alarm, and steam separator. These functions are fully treated in the catalog and numerous illustrations are also included.

Uehling CO_2 Equipment.

The Uehling Instrument Co., 71 Broadway, New York, has just issued bulletin No. 111 describing Style U Uehling CO_2 (carbon dioxide) equipment. This is a new design built in single and multiple forms, the latter serving any number of steam boilers simultaneously, up to a total of six. The purpose of this equipment is to save fuel by burning it with the proper air supply. Among the notable features of the new machine are speedy action, resulting from a new form of aspirator, absence of chemical solutions, greater simplicity and the unique plan of providing an auxiliary boiler front CO_2 indicator, which guides the fireman, while the CO_2 recorder, installed in the chief engineer's office or superintendent's office, makes a continuous (not intermittent) record showing all changes in boiler adjustments that are conducive to either waste or economy.

Up from the

Central Globe Valve with Waste

Central Globe Valve with waste takes the place of ground key because it has been proven better and because it serves equally well as stop, valve or stop and waste. It is particularly appreciated on hot water lines, where ground key cocks are especially unsuitable.

FROM the ashes of our recently fire-ravaged ce fire
11, another June 23), springs a greater ente larger,
and better equipped manufactory which will to take
of the requirements of the trade more effectivel

By the time this reaches you we will have gott ll oper
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tried Central Products.

We have sufficient capacity to take care of all stomer
many new ones. May we send catalog "J" an et?

J24 Quick-Pression Bibb

J33 Q

Showing Result of Fire on April 24 1920
Photographed April 29 1920

J90 Quick-Pression Bath Cock

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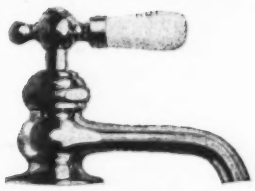
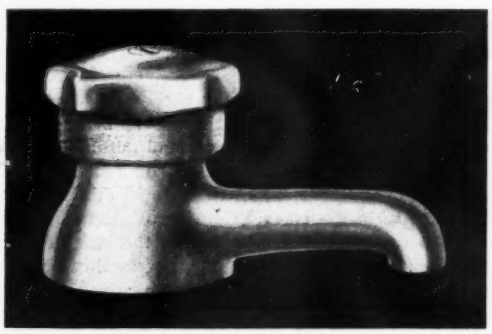
The Rebuilt Plant



J71 Quick-Pression Basin Cock



"Allwite" Quick-Pression Basin Cock

"Allwite" QUICK-PRESSION Vitreous China Basin Cock is a wonderfully attractive and beautifully designed faucet for use wherever brass basin cocks could be installed. It will stand bumps that would mar a brass faucet. The mechanism is the famous QUICK-PRESSION which needs no introduction.

"Quickool" Drinking Fountain
Trade Mark and Patent Applied For

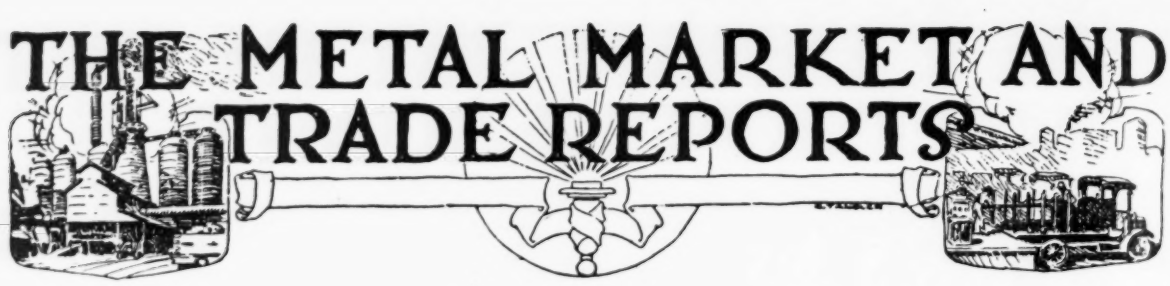
The "QUICKOOL" is the most scientifically constructed fountain on the market. The PROTECTED ANGLE JET makes it absolutely proof against contamination. Holds 75-lb. cake of ice, has a ⅜-in. supply and 1¼-in. waste; ready for connection. Cast iron cooling chamber instead of coil, makes it cool almost instantaneously.

CENTRAL BRASS MFG. CO. of CLEVELAND

cturers of the Patented and Trademarked QUICK-PRESSION PATENTED Faucets

writing advertisers.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

Considerable buying of pig iron over the past week reflected the peculiar condition of the market, and especially the attitude of the buyers, for it was shown that new high points as to price were reached sufficiently to make $50 Bessemer and foundry iron a fact, and, at the same time, sales were put through for as much as $3 under this price. For basic a wider range of prices seemed to prevail than for a long time. Recent trades ranged from $46.50 to $49 valley base, with the bulk of the tonnage going at $48.50 valley. Scarcity of both basic and Bessemer at this time and for the remainder of the year has been working the price upward, but another pull in the opposite direction has been working in the softening of coke prices, which seem now to drop very sharply.

The effect of this counter influence is not yet clearly defined. Foundry and malleable tonnages have been less noticeable in actual sales. There are understood to be inquiries for as much as 18,000 tons of No. 2 foundry iron for the remainder of this year's delivery, but it is certain that $50 is well established as the basis for late tonnages of this iron. A little inquiry is also appearing for gray forge iron which is now quoted at $49.50 valley.

In the finished steel lines, the wire and nail markets appear to be under the most active pressure for supplies. The wire producers are making a good record in production, too, and with the better supply of cars have reduced the enormous piles of unshipped stock at mill warehouses sharply and have increased output measureably. In the face of this, however, the pent-up demand for nails has been forcing prices to higher levels and some Midwest mills have been quoting as high as $6 per keg base on common nails and $6.50 on cement coated nails.

The demand for cut nails has been increased abnormally because of the shortage in wire products, and cut nails are quoted at from $6.50 to $6.75 per keg. Little tonnage is available as the deferred shipments are very heavy at all makers' plants.

Conditions in the valley last week showed signs of serious car congestion as a direct result of the abnormal coal and ore movement. The railroads have kept a stream of loaded coal cars going to the Northwest and returned the cars loaded with iron ore to blast furnaces so fast that it has been impossible to unload them. The terminals are becoming choked with loaded ore cars, and other freight is being blocked. The ore situation, which at one time threatened to become acute and force some furnaces out of commission, is now better than it has been at this season in years.

That pig iron operations are on the increase is indicated by the latest reports of the Iron and Steel Institute, whose statistics show that, on July 1st, 322 out of a total of 464 furnaces in the country were active, an increase of forty-two over the early part of the year. However, on August 1st it was estimated that the rate of production was still at low peak for the year, with the exception of April, as the yearly average was only 35,000,000 tons as compared with 33,650,000 in April, while in other months the rates were as follows: January, 35,850,000; February, 37,850,000; March, 40,050,000; May, 35,550,000; June, 37,400,000, and July, 36,500,000. Nevertheless, the production in the first half of this year was about 3,700,000 tons higher than during the second half of 1919, divided as follows: Basic 8,450,694; Bessemer and low phosphorus, 5,918,524; foundry, including ferro-silicon, 2,980,201; maileable, 666,165; forge or mill, 168,869; ferromanganese, 128,054; spiegeleisen, 58,907, and other grades, 64,138, or a total of 18,435,602 tons. Export prices of pig iron on July 1st were $14 a ton higher than at the beginning of the year. In January the average was $35.40 and six months later, $49.40. Prices of pig iron are quoted as follows:

No. 2X, Philadelphia	$52.90
No. 2 Southern, Birmingham	42.00@45.00
No. 2, Buffalo	48.00@50.00
No. 2, Chicago	47.00
Basic Valley, furnace	48.50
Bessemer, Pittsburgh	48.40@50.00

Copper.

There was but little done in the copper market last week. Dullness was felt throughout the trade. The large sellers, who quote unchanged from the prevalent level during the past two months of 19 cents a pound for delivery to the end of October, have had few orders. Inquiries are only sporadic and few materialize. Consumers are not in the market because they have been receiving old contract tonnages that keep them operating without reserve stocks.

It is generally understood that users of the red metal, especially brass makers, electrical and automobile interests, are not fully covered for fourth quarter requirements and a movement in the near future to place bookings would elicit little surprise in the trade. Considering that producers are able to maintain a firm price despite the lack of demand, it is quite logical to suppose that any developing purchases in the next week or so would certainly advance the market, especially in view of the increased costs to operators by the higher freight rates that go into effect on Thursday.

Tin.

Dealers say they have seldom experienced so backward a demand for tin as now features the market. In many quarters dissatisfaction is keenly felt, but holders are not inclined to let large tonnages go at a low basis because it is generally believed that favorable developments in the Polish situation would improve the exchange and bolster the British market. The market closed the week at 47¼ cents a pound for spot and nearby, and at 47½ cents for futures, which compared with 48 and 48¼ cents earlier in the week.

Lead.

Quieter conditions eased the insistent demands of buyers of lead, although several consumers have standing inquiries for moderate tonnages in the trade, without hopes of getting prompt shipments at any level under the firm quotations of 9.25 to 9.50 cents for New York delivery, and 9 to 9.25 cents East St. Louis. Little is available from the leading interests for August or September, with prices normal at 9 and 9½ cents, respectively. The sentiment that lead will go even higher seems to be well founded on extreme

scarcity and on the coming of higher freight rates. The buying of substantial tonnages by foreign accounts, with American interests the most active, improved the tone of the British market to the point that prices in the main were ten shillings higher than on August 13th.

Zinc.

The market did not close with as active demand as featured the trade earlier in the week, but prices held steady even though the demand was largely decreased. Holders seem confident that lower quotations will not again be reached in view of the low production and the refusal of large sellers to dispose of stocks at present prices. The range now prevailing is 8 to 8.05 cents at East St. Louis for spot and August, with a five-point premium for the following months.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum (in 50-ton lots)	33 cents per lb.
Antimony (Chinese and Japanese)	7½ cents per lb.
Solder, No. 1	34½ cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	14½ to 14¾ cents	15¾ cents
Copper, light	14¼ to 14½ cents	15½ cents
Brass, heavy	9 to 9¼ cents	10¼ cents
Brass, light	7¼ to 7½ cents	8½ cents
Brass turnings	8½ to 8¾ cents	9¾ cents
Lead, heavy	8¼ to 8½ cents	9½ cents
Tea lead	5½ to 5¾ cents	6¾ cents
Scrap zinc	6 to 6¼ cents	7¼ cents
Solder joints	11½ to 12 cents	13 cents
Mixed babbitt	10 to 12 cents	13 cents
Composition turnings	12¾ to 13 cents	14 cents
New brass clippings	10½ to 11 cents	12 cents
Block tin pipe	40 to 41 cents	42 cents
Tin foil	30 to 31 cents	32 cents
Cast aluminum	22½ to 23 cents	24 cents
Cocks and faucets	11¾ to 12 cents	13 cents
New zinc clippings	7 to 7¼ cents	8¼ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

Heavy yellow brass	10 to 10½ cents	11½ cents
Brass, light	9 to 9¼ cents	10¼ cents
Brass borings	12¾ to 13¼ cents	14¼ cents
Brass Turnings	9 to 9½ cents	10½ cents
Red brass	14½ to 14¾ cents	15¾ cents
Copper, crucible	15 to 15¼ cents	16¼ cents
Copper, heavy	14½ to 15 cents	16 cents
Copper, light	13 to 13¼ cents	14¼ cents
Lead, heavy	7½ to 7¾ cents	8¾ cents
Tea lead	5½ to 5¾ cents	6¾ cents
Zinc	5¼ to 5½ cents	6½ cents
Solder joints	9½ to 10 cents	11 cents
New aluminum clippings	27 to 28 cents	29 cents
Cast aluminum	25 to 25½ cents	26½ cents
Block tin pipe	35 to 40 cents	41 cents
Tin foil	30 to 35 cents	36 cents
Mixed babbitt	7½ to 8 cents	9 cents

The **National Board of Farm Organizations** announced recently that organization of the Co-operative Farmers-Borrowers of the United States as a national body, including members of the 4,000 farm loan associations, already organized under the Federal Farm Loan Act, has been inaugurated, with headquarters at Washington. The association is to be organized on a voluntary basis by local farm loan associations, which are to be formed into state unions as soon as conventions can be held.

MANUFACTURERS COMMENT ON INCREASED FREIGHT RATES.

Chicago, August 25th.—What is the future of prices? How much will the increased freight rates affect business? Is buying going ahead? These questions are occupying the attention of the trade at this time. A manufacturer of boilers and radiators said today: "Our chief difficulty is that of getting cars. We have a big pile of equipment at our plant, but it is moving slowly. In fact, conditions have not changed materially during the past sixty days. As to the increased freight rates, I do not believe they will affect this year's business anything to speak of, but adjustments will no doubt have to be made for 1921. Things seem to be a little easier in other directions. I called on two jobbers yesterday and both had supplies of 1¼-inch black and galvanized pipe—not big supplies, but enough to indicate that there is some improvement in the situation." A manufacturer of soil pipe and fittings, commenting on the market, said that the erection of new foundries is likely to have some affect this year in making prices lower. A manufacturer of radiator valves stated that there is no likelihood of lower prices in that field for a long time to come, with raw materials at the high level now existing. Regarding the effect that increased freight rates will have on commodities, he said that shoes, for example, are very light compared with the weight of a radiator valve, so that, considering the cost of each, valves will be affected a great deal more than shoes. A manufacturer of steel pipe said that the new freight rates will seriously affect that product. He stated that handling ore alone on the new basis will increase finished pipe $4 a ton—and that is only one item.

Building construction in Chicago continues to lag. The building department of the city estimates that, owing to high costs of materials and labor, $150,000,000 worth of work is held up. Only one house is going up at a time when ten should be in course of construction. The lack of activity has naturally affected the labor market and a shortage generally of skilled mechanics does not exist. These conditions are, of course, being reflected in limited orders for everything needed in modern building work.

A TASK OF AMERICAN BUSINESS.

A prodigious piece of business has been the closing of the war books by the United States Liquidation Commission appointed February 11, 1919, and confronted by problems of adjustment and disposal related to the maintenance in France on November 11, 1918, of 2,056,123 men, whose numbers were expected to be increased by 2,000,000 more. Everywhere were scattered vast supplies, and great contracts were outstanding with the Allied nations and there were claims and claims and claims. This commission toiled on until May 31, 1920, and its story just published by the government accounts for $893,716,093.26, as involved in American settlements with various nations, and $822,923,225.82, as earned by the sale of materials on hand. Is not this a business romance in itself? American installations in France were so vast that it was estimated that it would have taken the labor of 40,000 men for from six to eight months to dismantle and salvage the materials. France finally agreed to pay at bulk sale $400,000,000 in ten-year 5 per cent bonds, and waived all claims of every nature arising out of American occupation. In the efficient conduct of this work the commission's expenses were a trifle less than thirteen-one hundred thousandths of the amounts involved in settlements made and sales negotiated.

Laredo, Tex.—McKeon & Lott have opened a plumbing establishment in this city.

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

John Gorman, 6723 South Halsted Street, has secured the contract to install the plumbing in the residence now being erected at 7641 Clyde Avenue for H. Nebel.

L. H. Prentice Co., 330 South Sherman Street, has been awarded the heating contract on the remodeled section of Glidden Co.'s factory at 2675 Holly Avenue.

B. J. Farwell, 410 Sherman Street, will remodel the plumbing and heating systems in the John R. Thompson Co.'s store at 1123 East Fifty-fifth Street.

M. J. Corboy Co., 178 West Randolph Street, will install the plumbing in the $60,000 addition to the telephone exchange at 1454 West Nineteenth Street for the Chicago Telephone Co.

Other Cities in the State.

E. Adams, Decatur, has been awarded the plumbing contract on the $10,000 residence that is to be erected in that city for V. F. Keller.

Hamwell Beach Plumbing & Heating Co., Clayton, was the successful bidder on the contract to install plumbing and heating in the $63,000 Bowen community high school that is to be erected in Bowen, Ill.

Architect Eric Hall, 123 West Madison Street, has completed plans for the new $250,000 film exchange that will be erected at 831-33 South Wabash Avenue.

Architects Zimmerman, Saxe & Zimmerman, 64 East Van Buren Street, have completed plans, and will call for bids about August 30th for the $225,000 Roman Catholic Social Center building, which is to be erected on Webster and Chicago Avenues, Joliet, Ill., for the Joliet Council, No. 385 Knights of Columbus.

Architect Dubin & Eisenberg, 139 North Clark Street, is taking bids on a structure, to contain seven stores, eighteen offices and a loft, which is to be built for H. R. Otto on Roosevelt Road and Avers Avenue.

Murphysboro Plumbing & Heating Co. Exhibits at County Fair.

The way to interest the farmer in modern plumbing, heating, water supply and lighting equipment is to show him what you have. One of the easiest ways to do this is by having an exhibit at the county fair. This philosophy caused the Murphysboro Plumbing & Heating Co., of Murphysboro, Ill., to make ample preparations to be represented at the Jackson County Fair, which took place August 17th to 20th, and the results of their work are shown in the accompanying illustrations, which are three views of their exhibit. Looking from left to right, one sees a variety of equipment and numerous signs to attract the passer-by and make him interested and a buyer. In the first picture can be seen an electric lighting plant, bath tub and shower connected to an electric pump, a washing machine, electrically operated sewing machine, and electric heater, percolator, etc. The center view gives a close-up of a pedestal lavatory, a low-down tank closet combination, and a bath tub with a portable shower. A more general view is reproduced in the last picture. These illustrations are evidence that the Murphysboro company is on the job in selling the farmer. The members of the firm are overlooking no bets in reaching the farmer effectively. Established in a town having a population around the 9,000 mark, the company does a substantial business within a good radius of Murphysboro and is always on the lookout for new business and uses up-to-date methods to get it.

Missouri

St. Louis Master Plumbers' Annual Outing.

The Grand annual picnic and outing given by the St. Louis Association of Master Plumbers was held at Normandy Grove, Saturday, August 14th. It is estimated that more than 3,000 attended, making the outing a grand success. Valuable prizes were given the winners of the numerous races. These prizes having been donated by twenty-two manufacturers of plumbing and heating goods. Although the day started out in a dismal form, touring cars, motor trucks and trolleys carried the picnickers to the grounds.

Luncheon was served upon reaching the grounds, and was followed by high-spirited music from Noel Poepping's Military Band. Both young and old participated in the dancing, which followed.

At three o'clock the baseball teams were corralled, and a five-inning game was started. The two teams, Crane Co., managed by A. L. Mueller, and N. O. Nelson Mfg. Co., managed by Ed Hartney, pounded away at the horse hide and sailed it far and wide. Circuit drives were made by Roche, Casey and Callahan, of the Nelson team and by Jennervin and Lohr, of the Crane team. Despite the three "Bambino" hits chalked up for Nelson, the two "Tarzan" swats made by Crane enabled them to carry away the honors by a score of 9 to 6. Only in one of the five innings was the Crane team retired without runs, while the Nelson team was retired scoreless twice. In their half of the first inning Crane Co. had five men over the plate, giving them a good start. In the second inning three runs were scored, and one in the fourth, making a total of 9. The Nelson nine were allowed only two in the first, three in the third and

Exhibit of the Murphysboro Plumbing and Heating Co., Murphysboro, Ill., at the Jackson County Fair.

one in the fourth for a total of 6. The game was interesting throughout, having a joyous crowd of spectators.

The baseball game having started the real sports of the day, the races for the kiddies, the grown-up kiddies, and the real grown ups were staged.

The first event, a 100-yard dash for apprentices, was won by J. J. Noble, who was presented with a portable shower. A 100-yard cracker and whistle race for boys from eight to fifteen years was then run, and the honors went to Ernest Holmann. The married ladies' clothes line race was won by Mrs. Walter Schaeffer, who received an enameled iron medicine cabinet for her efforts. The little fellows had their turn in the prizes in the form of a shoe scramble. The prize for the scramble was an indoor baseball, and was won by Alvin Holmann. A vanity case was presented to Winifred Earley for her ability to win the balloon race for the little girls. The doughnut eating contest for girls was next, and

Snapshots Taken at the Annual Outing of the St. Louis Master Plumbers' Association: Top, E. J. Feehan and J. M. Rhine, Crane Co.; the Crane Co. Baseball Team; F. W. Leonard, N. O. Nelson Mfg. Co., and Jno. R. Calhoun, Standard Sanitary Mfg. Co.—Center: E. McLundie, Josam Mfg. Co., and F. C. Reimers; Umpire S. A. Kiernan; G. P. Miles and Wm. Mortimer.—Bottom: Jno. D. Els, B. Brown and E. J. Blake; the N. O. Nelson Mfg. Co. Ball Team; Mr. and Mrs. Thomas O'Brien.

honors were carried away by Miss Clara Knoll, a white toilet set being the reward. T. J. Sheehan carried away the Humphrey heater, the prize for the winner in the elimination contest. Miss Lagretta Waterland was the winner in the bottle filling contest for young women, and as a token of her accuracy a Ruud tank heater was presented to her. First honors in the handicap mule race for master plumbers, as well as a lavatory, were carted away by C. S. Moynihan. Fifty pounds of solder was the first prize for the pie pan and potato race staged for the wives of master plumbers, which was won by Mrs. R. B. Ross. The 100-yard dash for supply men was won by K. H. Bopf. A pipe bench, bender and vise was won by J. J. Noble, who crossed the tape first in the 100-yard dash for young men over fifteen years.

Following the races luncheon was served on the grounds, accompanied by music, or a "music while you eat" menu. Dancing was then participated in by the younger set, who enjoyed themselves immensely until the close of the eventful day.

Indiana

Building permits issued at Huntington during the month of July, show that very little building was in progress during the month. Thirty-six permits were issued for total improvement valuation of $8,380. Of these twenty-nine were for additions and repairs to residences and seven for garages and buildings other than residences. Sixty-one permits were issued in June.

Building contracts issued at Evansville during the month of July were less than one-third the amount of those made during the same period of 1919. Thirty-six permits were issued during July, 1920, on a total cost of construction of $22,453, in comparison with 118 permits on property valuation of $79,530.10 for the same period in 1919.

An important enterprise calculated to become a big factor in the building trades at Elkhart was organized last week as the Elkhart Real Estate & Housing Corporation, with an authorized capitalization of $600,000. The new company will engage in a general real estate business and eventually expects to become active in building a large number of new residences.

The directors of the Goshen Housing Corporation have decided not to proceed with the erection of any houses at this time. A plan to build from ten to twenty-five homes had been under consideration, but the stockholders voted to postpone the building program until the price of materials and labor is somewhat reduced. It is estimated that from 100 to 200 new homes are needed in Goshen.

The contract for the installation of a new heating and ventilating system in the high school building at Lapel has

been awarded to the Sanitary Engineering Co., of Anderson. The company's bid was $24,069.

The Orth Plumbing Co., of Lafayette, has been awarded the contract for the installation of heating and plumbing systems in a new consolidated school building that is to be erected near Onward. The contract calls for an expenditure of $23,355.

The Cotton-Weibke Co., of Indianapolis, has received the contract for the installation of a new heating plant in the court house and jail at Lebanon, in Boone County. The company's bid was $40,866.

The firm of Logan & Morrison, of Anderson, was the successful bidder for the plumbing contract on the new consolidated school building that is to be erected in Madison County. The heating contract was awarded to John Longaker, of Anderson.

The firm of Wallace Bros., of Lafayette, has been awarded the contract for the installation of the plumbing and heating systems in the new $25,000 school building that is to be erected at Foresman.

Contracts for the installation of the heating, ventilating and plumbing systems in a new $40,000 school building, to be erected at Kentland, have been awarded to Arthur B. Murray, of Monticello.

Fred L. Dorseman, of Frankfort, was the successful bidder for the plumbing and electric wiring contracts on the $15,000 residence that is to be erected there for M. N. Hurd.

With the Maryland Plumbers at Their Annual Outing: Left to right: Some of the Crab Eaters; On Board the Good Ship, "Stony Creek," A. C. Schmidt, C. H. Wagner, H. B. Foster, J. T. Taten and H. J. Skelly; Some of the Members Enjoying Cool Drinks.

The heating contract was awarded to the Franklin Hardware Co., also of Frankfort.

The Lige Heating & Ventilating Co., of Auburn, has received the contract for the installation of a heating system in the addition to a school building at Crown Point.

The firm of Clark Bros., of 317 East Main Street, Muncie, has been awarded the contract for the installation of plumbing and heating systems in a new $15,000 residence that is to be erected in that city for Charles Vogel.

Maryland

Maryland Master Plumbers' Annual Outing.

The annual outing of the Maryland Association of Master Plumbers was held on Tuesday, August 17th, at New Altoona Beach, Md. Master plumbers, their wives and children, boarded the good ship "Stony Creek" at two o'clock for the scene of joviality. Although the day started out good, several showers gloomed the horizon, but apparently not the spirit. Dancing and much other fun was enjoyed on the boat going down the Creek, but a heap more was awaiting when the boat docked. The delegation was greeted at the beach by William F. Myers, chairman of the outing committee, who immediately led them to a large sack of peanuts where a wild scramble was made to procure some of the shelled delight. Winding their way further into the grove, a halt was made at a large table covered with crabs. Here every one was introduced to Mr. Crab, not "spokenly, but bitingly." By the works of Fate, just as the feast began, it started to rain, causing the anxious crowd to scamper for shelter. But despite the cloud's indignation, the shell fishes were brought to the picnickers by members of the committee. It seemed just a joke for the rain did not last long, and the crowd, to make the best of the day, wound its way in and out of the woods and dales, and visited the merry-go-round, dancing halls, and numerous other places of amusement. Having submitted themselves to the temporary enjoyments, the celebrities surrounded a "front porch" speaking stand where short addresses were delivered by William F. Myers, Nelson Barnes, president of the association, Dr. C. Hampton Barnes, health commissioner, W. H. Rothrock, one of the oldest master plumbers, Mr. Skates, president of the Builders' Exchange, National Past President Walter D. Nolan, of Washington, and Milton C. Milander, the man that kept things going during the day.

Following these talks, the Mercuries dashed to the racing grounds. A sack race was the first race for men, and was won by H. B. Marshall, who also won the three-legged race, the second event, and the 100-yard dash. Mr. Marshall did not prove to be so fleet in the egg race, and the prize went to Phil Lorber. Having disposed of the sports for the nimble, a plate luncheon was served. It was like a day in the army, this luncheon, or maybe better still, an afternoon in a cafeteria, as the picnickers went in single file to the mess kitchen.

The good ship "Stony Creek" steamed into the harbor at eight o'clock ready for the return trip. Dancing, which was unfinished in the dance hall, was continued on the boat, and more lively too. Upon reaching Baltimore the large party was greeted with a big shower. Despite the profusion of the nimbus, everyone was joyous, and glad they had attended the best picnic held by the Maryland Association.

New York

The Housing Shortage in New York City.

That the housing shortage is causing the people of New York to live with an insufficiency of sanitation and ventilation, to an extent which is a menace to public health and morals, is the charge made by Edward P. Doyle, secretary of the Mayor's Housing Committee. "So far," said Mr. Doyle, in a statement recently issued, "the housing shortage has not resulted in ejected families having to live in the parks, but there is no telling what will happen when the thousands of people, who have gone out of town for the summer, come back to New York around October 1st.

"The worst feature of the situation, at the present moment, is the over-crowded conditions under which people are living. So far evicted families have all managed to find lodgings with other families, compelling them to live in an insanitary way, and often forcing men, women, boys and girls to live under improper, mixed conditions.

"One effect of the congestion has been to bring into sudden popularity the disappearing beds, and to cause also a widespread building of upper and lower berth arrangements in apartments and tenement houses.

"I am informed that about 50,000 disappearing beds have been installed in this city in the last few months, in order to increase sleeping accommodations in crowded apartments and tenements.

"There are several buildings being erected now in which the builders have put in double-deck state-rooms for bedrooms. Between $10,000,000 and $15,000,000 is being spent today in remodeling apartments, so that a five or six-room apartment becomes two three-room apartments, and a three-room apartment becomes two two-room apartments.

"There is not quite so much congestion among the cheaper apartments however, as there was a few weeks ago. There has been some migration into the Bronx, Westchester County, and parts of New Jersey, and thousands of people who have been living in bungalows which they used normally only as summer resorts, are now preparing to spend the winter there, and to convert these structures into all-year residences.

"The two great obstacles in the way of improved building conditions are labor and shortage of materials. With materials at a fair rate, and obtainable, and labor doing a full day's work for the full day's pay that it demands, the situation would begin to be solved."

The fact, as pointed out by Mr. Doyle, that owners of summer bungalows, despairing of being able to find living accommodations in New York City, are now taking steps to convert these structures into winter quarters, is proving a good thing for suburban plumbing and heating men, inasmuch as it has resulted in thounsands of orders for the installation of heating and sanitary equipment.

The extent of the cutting up of large apartments, in the metropolitan district, into smaller apartments, is also furnishing a lot of work for the plumbing and heating fraternity. Every time a five or six-room apartment is converted into two suites it means, of course, an extra bath-room and additional sanitary equipment, and, with fifteen million dollars now being spent in this remodeling work, there are enough jobs to keep many plumbing and heating contractors busy, in spite of the dearth of new housing construction.

Regarding the latter, it is now evident that when the special session of the legislature, called by Governor Smith, is held next month a serious effort will be made to speed up building operations.

In order to save time, and to concentrate endeavor on bills deemed of most benefit to the people, leaders of both parties will get together next week with Governor Smith in a conference to map out a complete program. Among those who will take part in the conference will be Senator Lockwood, Tenement House Commissioner Frank Mann, Abraham I. Elkus, Chairman of the State Reconstruction Commission, and Secretary Doyle, of the Mayor's Housing Committee.

The exemption of mortgages from the income tax, and of new housing construction from all taxation, are the measures favored by most of the legislators, it is said, as being the most practical steps toward the immediate revival of building on a large scale.

The fostering of a municipal housing plan, while it will probably be introduced at the special session, is not expected to meet with much support. From opinions already expressed the majority of the legislators seem to be agreed that the plan is not practical.

"It would defeat the solution of the problem, just as the rent laws have done," one assemblyman said. "It will further drive away private capital, for private capital will not, and cannot, compete with municipal capital.

"As a matter of cold truth, municipal capital would not be a drop in the bucket, and I predict that if a municipal housing plan is adopted it will put off construction, and bring about even worse conditions than exist."

An embargo on all building operations except housing construction, until the latter approaches more normal conditions, is another measure to which the special session of the Legislature is likely to give serious consideration.

This step, however, will be bitterly opposed by the business men of New York City, who protest that it is not only the house tenant who is suffering at the hands of the profiteering owner, and that the shortage of office space is almost as serious a problem as the shortage of homes.

Business men have pointed out to the Lockwood Committee that in most buildings down town it is impossible to get an office, and that there is a long list of applicants on a waiting list. Office space is so scarce that whereas a few years ago desk room could be had for $15 per month, $30 per month is now the cheapest rate at which any kind of desk room can be acquired. A committee of business men, it is expected, will go before the Legislature and will raise the point that conditions in commercial real estate circles are such that the business tenant needs protection almost as much as the house tenant, and should not be discriminated against.

Transportation conditions in this city during the past

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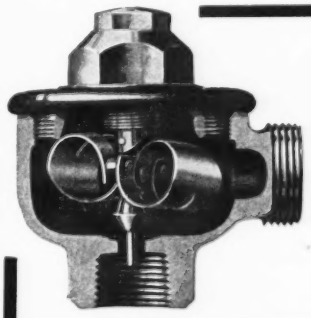

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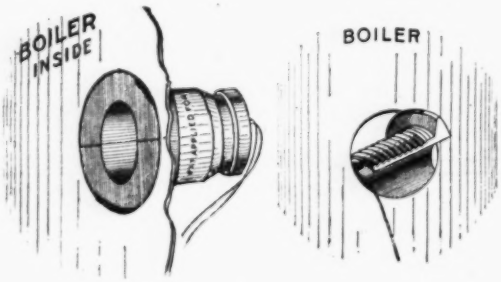

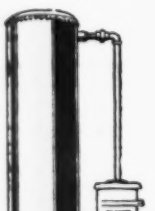

Two exclusive features of our spud—the full and complete flange which holds spud from inside of boiler and bronze washer which shapes itself to conform with surface of boiler. Makes an ideal connection.

To install a water heater with Ideal Boiler Spuds, drill two holes in side of boiler—one near top and one near bottom. We furnish a special Ideal Drill for this purpose.

Take both halves of Spud and drop in sideways, at same time holding string. Then draw up one at a time into place so that stems of Spud extend from hole. Slip over bronze expansion washer and then screw up coupling, which gives you a water-tight, compression-tight connection.

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week have shown no improvement, and the shortage of supplies of all kinds is still harassing the local plumbing and heating industry.

Not much hope is held out by the railroad executives, many of whom now seem to feel that the coal car priorities which have been extended each month by the order of the Interstate Commerce Commission are likely to be further extended to carry over until late this year.

It is pointed out that the navigation on the Great Lakes stops early in November, and it is believed in railroad circles that no relief will be forthcoming to steel mills and building materials makers until just before winter shuts down.

Buffalo Master Plumbers Planning Great Outing

The Masters Plumbers' Association of Buffalo, N. Y., will hold its annual outing on Thursday, September 2nd, at the Buffalo Automobile Club, Clarence, N. Y. The wives and daughters of members will also attend, and there will be dancing, baseball, and other games for which prizes will be awarded, with dinner and music making a full measure. The trip will be made by automobiles, starting from the Albright Art Gallery at 11:30 a. m. Roy P. Wilson is chairman of the entertainment committee, while the ladies' reception committee will include Mrs. A. C. Kranichfeld, Mrs. Thomas J. Kavany, Mrs. George Guenther and Mrs. William Ebbs.

New Jersey

Trenton Master Plumbers' Fifteenth Annual Outing.

If the price of beef-steak goes soaring within the next few days, don't blame the Beef Trust. Those fellows have a good, copper-riveted alibi, this time. They are in a position to place the responsibility squarely on the shoulders of the master plumbers of Trenton, N. J., who consumed such enormous quantities of juicy sirloin at their fifteenth annual outing, at Springdale Park, Yardville, N. J., on August 17th, that a national shortage of red meat is believed to be inevitable.

Nobody who has ever had an opportunity to observe a plumber at feeding time would attempt to accuse plumbers as a class of being poor eaters, of course, but the gastronomical performances of the members of the Master Plumbers' Association of Trenton, at their recent feast, broke all records, even as plumbers' appetites go.

A dozen times the heaping platters of tender, luscious beef steak were passed around, but not a man weakened—at least, not a plumber. The salesmen, and other invited guests were compelled to surrender after the tenth round, but the plumbers stood heroically by their guns, and stuck it out until the entire New Jersey supply of red meat had been exhausted.

And then, just to show that putting away beef steak wasn't the only athletic sport in which they excelled, the plumbers repaired to the ball field where they outbatted a picked team of the salesmen by a score of 11 to 7.

Next to the beef-steak dinner, the base ball game was the big feature of the outing, which was attended by 110 master plumbers and their guests, and was said to be in every respect the most successful affair ever held by the Trenton association.

Herman Westphal pitched for the plumbers, Emil L. Pleider constituting the other half of the battery. Frank R. Dunn played first base; John L. Lacy, 2nd base; Thomas E. Tootell, 3rd base; Frank B. Penrose, short-stop; George Hornkette, right field; Daniel Sisti, center field; Harry Jammer, left field.

The pitcher for the salesmen—for a while—was Andy A. Boyle. After he had passed two men in succession, however, a self-appointed committee of three salesmen decided that Mr. Boyle had been eating too much red meat, and ceremoniously escorted him from the box. Robert Savill pitched for the rest of the game.

The other members of the salesmen's team were: Walter Hochuli, catcher; Leslie N. Harris, left field; Frank Gribbins, first base; Louis T. Jones, third base; John Winder, second base; William Abernathy, short stop; D. J. McIntyre, center field; H. Regan, right field.

A varied program of sports, including a quoit pitching match, and a blue rock shooting match, followed the ball game.

The marksmanship displayed by several of the contestants in the blue rock shooting contest made it evident that if ever there is another world war the rest of the country can safely leave it to the master plumbers of Trenton to make the world safe for democracy.

Winfield S. Dignan, vice-president of the association, and chairman of the outing committee, broke more blue rocks than any of his competitors. With a score of 21 out of 25 he was the acknowledged champion.

Several city officials attended the outing. Among them were: Commissioner J. R. Fell, Superintendent of Water Department Alvin Bugbee, and Plumbing Inspector Frank Fitzgeorge.

Among the state officers present were: President William A. Snudden, Secretary Walter A. Grub, State Organizer William F. Beck.

The Trenton Association of Master Plumbers is one of the most prosperous and active organizations of its kind in the country, and the guests, who had the good fortune to attend this perfectly conducted outing could not help being impressed by the splendid spirit that prevailed among the members, and by the fine, clean-cut class of men who are members of the plumbing industry in Trenton.

Harry Greiner is president of the association; Winfield S. Dignan, vice-president; John Black, treasurer; Walter Margerum, financial secretary, and Ira C. Hendrickson, corresponding secretary.

The committee in charge of the outing consisted of Mr. Dignan, Daniel Sisti, and Herman Westphal, and on the homeward trip these men were showered with congratulations by their appreciative fellow members on the success with which they had conducted every detail of the affair.

Souvenir caps and pencils were given to the picnickers by the Jos. A. Vogel Co., Wilmington, Del.

A credit rating guide has just been installed in the rooms of the association for the convenience of the members. As Secretary Hendrickson pointed out, in a bulletin announcing this innovation, "In these times it is most important that plumbers know something about the persons to whom they extend credit."

In giving credit to the Trenton master plumbers for conducting an unusually enjoyable outing, however, no credit rating guide is needed.

Kentucky

Louisville Master Plumbers' Annual Outing.

The annual picnic and all-day outing of the Louisville Master Plumbers' Association was held Wednesday of last week at Grote's Grove, on the Eighteenth Street Road. It was well attended by the members of the association, their families and guests, and everyone had a good time.

The day was enlivened with a baseball game, a tug of war and various other athletic and freak contests. Many prizes were distributed to the winners.

This was the most lavish picnic ever given by the plumbers, as the expenses of the day's entertainment came out of a $420 fund donated by the forty-two members of the association who received shares of the proceeds from the work done at Camp Taylor when it was built.

Not all of this fund was spent on the picnic, however, as the Association is planning a banquet to be given some time in the fall.

Louisville and Vicinity.

F. A. Clegg & Co. last week gave its first annual picnic for employes at the grounds of the South Park Fishing Club, which were secured for the purpose. All employes met in the company's office on South First Street at 8:30 Saturday morning and were taken to the picnic grounds in motor cars furnished by the company. The picnic committee, which had been at work a long time before the event, had a very satisfactory program arranged. Many stunts and contests were held, prizes being awarded the winners. There was also swimming, fishing and boating on South Park Lake. All refreshments, such as coffee, ice cream, soft drinks, sandwiches and watermelon were provided by the company, which paid all expenses of the day.

Work has been begun on the extension of St. Edward's Hospital in New Albany. The addition will cost about $35,000. It will contain twelve rooms and the plans call for a bath in each room. It will be 30 by 42 ft. and be three stories high, to conform with the remainder of the building.

Gray & Tompert are busy on the plumbing work in the

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Johns-Manville publish data relative to insulating values, which are available to you in booklet form. Send for this information and use it as a basis in selecting the insulation best adapted to your requirements.

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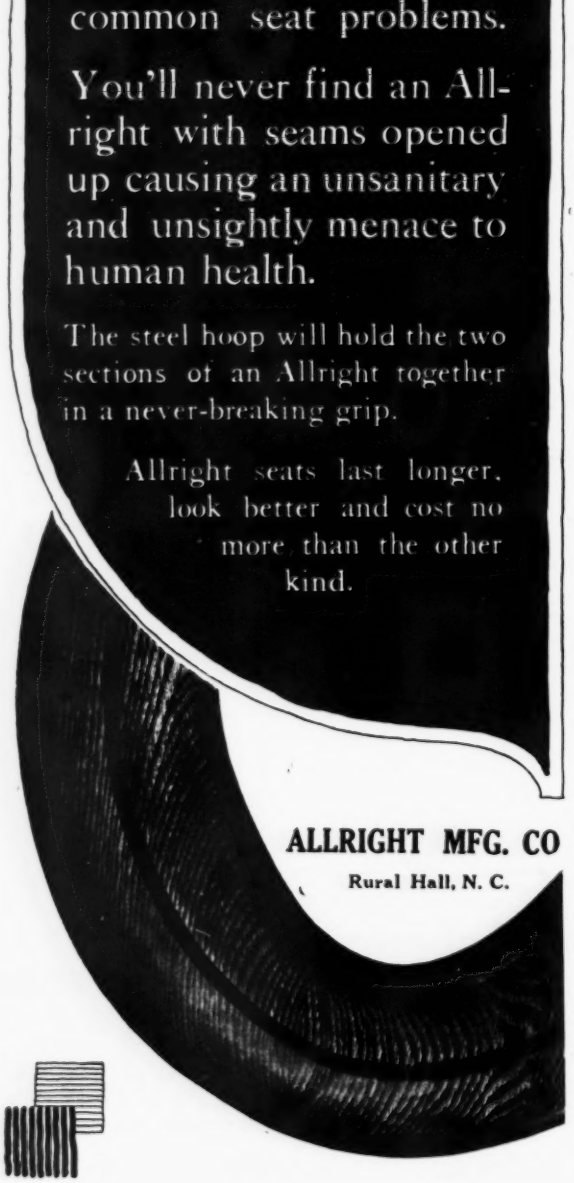

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new addition to the Inman Veneer and Panel Co. This same firm also secured a large contract at the Inman Furniture Company.

T. Clinton Heuglin is working on the fine plumbing contract recently awarded by Jacob Levy Bros.

The Red Cross awarded a large plumbing contract last week to the H. J. Hack Company. This company also got a large contract from E. P. Thomas.

Connecticut

The board of aldermen of Waterbury has taken a definite stand in favor of providing a public convenience station, and it is expected work will be under way soon. A building on Harrison Street will be remodelled for the purpose, and the plans are being prepared by the plumbing inspector and city engineer. An appropriation of $25,000 is available for the work.

Richards & Jessup Co., of Stamford has the contract for plumbing and heating in a two-story garage building to be erected in North Stamford for S. B. Owen.

Maltby Bros., are soon to erect a large garage on East Main Street, Waterbury, and have placed the plumbing and heating contracts with the Barlow Bros. Co.

A handsome residence is to be erected on Gaffney place, Waterbury, for J. L. Gaffney. The plumbing and heating will be done by M. J. Daly & Sons, Inc., of that city.

Contracts for a new firehouse in New London recently have been placed. The plumbing was given to the Thomas P. Cleary Heating & Plumbing Co., and the heating to the Hopson & Chapin Co. both local concerns.

The city of Hartford has asked for bids for a proposed new ten-room schoolhouse for which an appropriation of $235,000 is available.

Work has been started on a new high school building at Seymour.

Pagnan & Heslin, of Wallingford, have the contract for plumbing in a new armory to be erected on Main Street in that city. The heating system will be installed by Libby & Blinn.

The Northwest school district in Hartford is soon to have a new $250,000 schoolhouse. Harry U. Tuttle is chairman of the committee which will receive bids at an early date.

T. J. Quinlivan, of New Britain, has been awarded the contract for plumbing in a new school house soon to be erected at East Bristol. The heating contract will be let shortly.

The William P. Kirk Co., of Bridgeport, will do the plumbing, heating and sheet metal work in a building being erected on State Street in that city for Philip Barletta. The building will contain five modern stores.

The contract for plumbing and heating installations in a factory building being erected on Kossuth Street, Bridgeport, for the Salts Textile Co., was awarded to Schietinger & Ladwig.

The Master Plumbers' Association of New London and Groton has been incorporated as an association under the provisions of the state incorporation laws.

The city of Hartford is to expend $12,500 for alterations and additions to the public comfort station at the Old State House.

Massachusetts

Boston and Vicinity.

T. J. Murphy & Co., plumbers, long located in Dock Square, Boston, has removed to 6 and 8 Walden Street, Cambridge.

The Cleghorn Co., of 54 Batterymarch Street, Boston, has the contract for installing a new ventilating system in the State House at a cost of $50,000.

J. J. McGrath, of 97 Foster Street, Worcester, has been awarded the contract for installing plumbing in a block of eight stores at 986 Main Street for John F. Harrigan.

Contracts for a four-room addition to the Tatnuck school at Worcester recently have been placed. The heating will be done by F. J. Hughes & Son, of that city.

William H. Toner & Co., of Worcester, is doing the plumbing in a house on West Street for Arthur G. Webster.

The Petroleum Heating and Power Co., of Boston, has the contract for the installation of oil-burning equipment in the city pumping station on Walnut Street.

Alterations to cost $35,000 are being made to the residence of Charles T. Stoddard at Marshfield. C. H. Cronin of 91 Charles Street, Boston, has the plumbing contract.

Contracts for a new store and office building being erected on Union Street, Lynn, for the Goodman Co., include: heating, John F. Morgan & Son, Lynn; plumbing, M. A. Dame & Son Co., Lynn and Boston.

F. E. Woodward & Co., of 19 Friend Street, Boston, will do the heating in a residence to be erected on Nahant road, Nahant, for Mrs. A. L. Hopkins.

Extensive changes are being made in the Public Market building at 373 Main Street, Springfield, owned by Herman Isenburg and William May. The W. J. Hyland Co., of Springfield, has the heating and plumbing contract.

Other Cities in the State.

Smith College at Northampton will soon abolish the present individual hot air heating systems in the several buildings and erect a central heating plant to take care of all the structures.

Bids for the installation of new plumbing systems in the Cabot Street and Carter Street primary schools in Lowell have been received by Commissioner of Public Property Marchand. Carroll Bros.' bid of $1,875 was the lowest of nearly a dozen for the Cabot Street job; and the same firm's bid of $2,330 was the lowest for the Carter Street job.

The W. E. Sheils Co., of Belmont, has been incorporated to do a plumbing business with an authorized capital of $1,000. William E. Sheils is president, Mary L. Murphy, treasurer and Elizabeth T. Sheils the third member of the board of directors.

S. W. Lyon, of Palmer, has the contract for plumbing and heating in a parochial school building being erected at Three Rivers for the St. Peter and Paul's Parish. Mr. Lyon also has a contract for plumbing and heating in twelve houses for employees of the Palmer Mills at Three Rivers, which are being erected by the mill corporation.

The Power Heating & Ventilating Co., of 56 Travers Street, Boston, will install the heating plant and F. D. Kirby, 12 Park Square, Boston, and the plumbing in a new warehouse being erected on Albany Street, Cambridge, for the Standard Plate Glass Co.

The Marine Hospital at Chelsea is being extensively remodelled at a cost of upwards of $80,000. Frank Low, of Chelsea, has the plumbing, and the Bradlee-Chapman Co., of Boston, the heating.

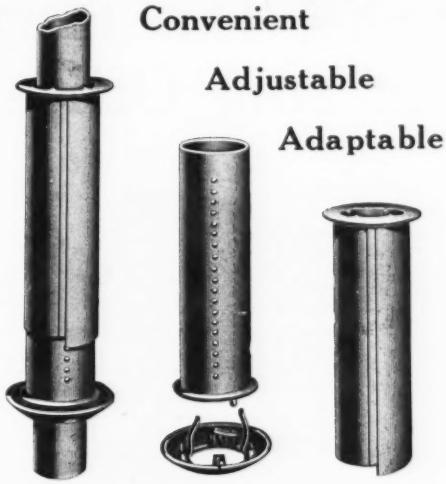
Maine Master Plumbers' Annual Outing.

The numerous islands in Casco Bay, Portland Harbor, are ideal places for picnics and outings which may account for the fact that the Maine State Association's annual outdoor gathering is always well attended. This, however, is not the only reason, for the Maine masters have a reputation as good fellows which in itself is a good and sufficient reason why master plumbers, jobbers, salesmen and others from various parts of New England never miss an opportunity to attend a Maine meeting.

The annual outing on Monday, August 16th, was no exception to the usual rule, and to say "it was a big success," or that "a good time was had by all" does not more than half tell the story. It was the eleventh midsummer outing of the organization and each has been better than the preceding one, if that were possible.

A specially chartered steamer, the Aucocisco, carried the members of the association, their ladies and guests from Portland to Long Island, where the outing was held. The boat left late in the forenoon so as to give out-of-towners time to get to the city.

The first business on the arrival at the picnic place on the island was to pose for a photograph, and then the sporting



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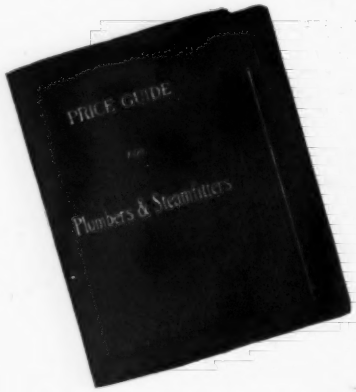

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program was started. Several events were run off before the dinner bell interfered. The feast, one of Cushing's famous shore dinners, was served in the Casino, the menu including lobster stew, steamed clams, boiled eggs, sweet potatoes, green corn, broiled lobster, doughnuts, coffee and cigars.

Before returning to the sporting program, President A. P. Goodhue addressed the company briefly and then led in singing "My Auto 'tis of Thee." Short remarks also were made by E. S. Bent, of the F. W. Webb Manufacturing Co.; W. F. Snow, of the Smith & Abbott Co., of Portland, and William H. Thayer, of the United States Radiator Corporation. Vice-President E. A. Wheeler, who attended the recent national convention in Pittsburgh as a Maine delegate, gave a brief oral report of the meetings.

The ball game which came next was of the usual exciting variety with a box of cigars as the prize. The game was won by the plumbers who, according to the best obtainable estimates, defeated the salesman 9 to 0. The umpire was F. E. Wheeler, who brooked no interference with or protests against his decisions. Captain Nugent, of the plumbers' team, was knocked out by a high ball (not the old-fashioned kind) which hit him in the jaw, but was not seriously hurt and was soon able to resume play.

Another annual event which always attracts attention is the tug-of-war, and this ran true to form. The only fear of the committee was that the hawser would not stand the strain. It did but the salesmen didn't, and the plumbers won another box of cigars. On the plumbers' side were Tabor, Duryea, Reid, Knight, Donovan, Wheeler, Tilton, Hotte, Mahaney and Moulton, while the salesmen had Bent, Doten, Rich, Davenport, Prescott, Dupee, Farr, Quimby, Austin and Miles.

Other contests, several of which were for the women, and the winners, follow:

Ball rolling contest, prize jardiniere; won by Mrs. C. E. Sadler, Brunswick.

Wheelbarrow race, prize bath fixtures; won by Miss Nellie Young, of Auburn.

Doughnut eating contest, first prize, slate sink, won by Mrs. W. F. Mahaney, Biddeford; second prize, box of candy, won by Miss Marr.

Boys' running race, prizes, money; won by Frank O. Rosebrook; Robert Goss, second.

Hundred-yard dash for women, prize, five-pound box of candy; won by Miss Marion Skillings, of Auburn.

Sack race, prizes, Stillson wrenches; won by C. A. Sadley; second, Mr. Dupee.

Three-legged race, prizes bath fixtures; won by Nugent and Tilton; second, Rich and Dupee; third, Hinman and Hotte.

Fat men's race, prizes, cigars; won by Fred E. Wheeler; second, Arthur Moulton; third, Dana Miles.

After the sports there was general dancing until it was time for the boat to start back, in the late afternoon.

The committee in charge of the outing consisted of P. A. Mahoney, C. Madsen, F. A. Davis and E. A. Wheeler.

The list of those present included the names of Mr. and Mrs. F. A. Davis, Mr and Mrs. W. F. Snow, Miss Margaret Snow, Philip Snow, Fred W Lyon, W. E. Nugent, Mr. and Mrs. M. H. Myers, Mr. and Mrs. P. A. Mahoney, Ernest Duyea, Arthur B. Fels, F. E. Wheeler, F. H. Stuart, H. W. Knight, F. H. Gibbs, E. A. Wheeler, Mr. and Mrs. C. Madsen, Frank S. Billings, Elliot A. Billings, C. O. Morton, Arthur H. Moulton, Jr., Margaret G. Moulton, Charles A. Maynard, M. A. Prescott, C. B. Crockett, Mrs. E. B. Crockett, D. H. Miles, Grace F. Miles, Mr. and Mrs. R. C. Parker, Donald Parker, Mr. and Mrs. J. H. Duffy, Mr. and Mrs. C. H. Tarr, Mr. and Mrs. P. H. Quimby, Mr. and Mrs. M. C. Tarr, Fred H. Rounds, and Mr. and Mrs. A. M. Rosebrook, of Portland; Mr. and Mrs. W. E. Allen, Mr. and Mrs. W. H. Roach and Charles J. Tilton, of South Portland; Byron E. Near and G. W. Hinman, of Cape Elizabeth; A. L. Knight, of Westbrook; Fred A. Taylor, of Freeport; Mr. and Mrs. E. W. Goss, Robert Goss, Donald Goss, Mr. and Mrs. T. W. Kerrigan, Mr. and Mrs. F. L. Tracy, Mr. and Mrs. John B. Mahan and Alice Kerrigan, all of Lewiston; Mr. and Mrs. H. A. Young, R. A. Young, Florence Hurley, H. R. Skillings, and Marion and Edith Skillings, of Auburn.

Mr. and Mrs. W. F. Mahaney, Esther Mahaney, Mr. and Mrs. Joseph Hotte and Roland Hotte, of Biddeford; George A. Norwood, Percy E. Norwood and Miss Georgia Marr, of Saco; Mr. and Mrs. F. M. Libby, of Kittery; Mr. and Mrs. John Cullen, of Sanford; William S. Reid, Mr. and Mrs. E. S. Reid and Mr. and Mrs. C. M. Taber, of Augusta; Mr. and Mrs. C. A. Sadler, of Brunswick; Mr. and Mrs. A. P. Goodhue, of Belfast; J. E. Donovan, of Winthrop; G. M. Stone, of Jay; L. G. Hatch, of Livermore Falls; Fred C. Park, of Orono.

William H. Thayer, Ralph D. Rich, Charles E. Duryea, A. F. Sawyer, Mr. and Mrs. N. W. Doten, H. W. Coombs, C. R. McKenney, Lucas C. Neal, Gordon A. Smith, E. S. Bent, J. E. Slattery, John J. Dervan, George W. Paul, William P. O'Toole, A. D. Brackett, Frederick Blomquist, C. A. Fenderson, Miss Reynolds and Miss Work, all of Boston.

E. H. Heriot, of Brookline, Mass; William Davenport, Detroit, Mich.; Jack Austin, George W. Pipes and Miss H. D. Runger, of New York City; Thomas H. Howley, of Rutland, Vt., and H. P. Murphy, of St. Johnsbury, Vt.

Rhode Island

Rhode Island Master Plumbers Plan Elaborate Outing.

The Master Plumbers' Associaton of Rhode Island will hold its 38th annual outing on Saturday, September 4th, at the Oakland Beach Yacht Club at Newport, R. I. Luncheon will be served for early arrivals at 12:30, and at 4 o'clock there will be a full course shore dinner. Between times there will be sports and baseball games and other diversions. Newport master plumbers are on most of the committees and are making arrangements to give the visitors a high time. T. B. Connolly, Lincoln Hammett, P. J. Murphy and Edward R. Openshaw are Newport members of the reception committee and Robert Haire, M. F. Murphy, the Sullivan Brothers and Ray B. Wilson are on the entertainment committee.

Utah

Salt Lake City and Vicinity.

Conditions in the plumbing and heating business have taken a decided turn from the critical stage that has existed in this vicinity for the past fourteen weeks. Through organized attempts to enforce the American Plan of employment all building construction has been tied up to a great extent until the present time.

Following the announcement of the intended change in the methods governing the employment of building tradesmen all affiliated tradesmen left the jobs which in every case were intended to be run under the American plan. For the first few weeks of the fight on the American Plan by organized labor all work remained at a standstill. The gradual influx of non-union men filled the vacancies to the extent that construction work has gained its normal pace at the present time.

Labor leaders putting forth extra efforts in the last two weeks in an effort to make agreements that would allow all union men to return to work and at the same time modify the American plan, have been unsuccessful. The contractors met these efforts by officially announcing that further parleying would avail nothing and that the general contractors of this city would consider no other form of employment than the American Plan, and refused to enter into any additional conferences.

Realizing the futility of their fight at this time, labor leaders have suspended the enforcement of the Building Trades Council rules and have ordered all union men back to work regardless of the conditions that exist as far as the Building Trades Council is concerned.

The plumbing business has suffered least during the past trouble. Although the large work has been at a standstill, no men, have taken the place of the journeymen plumbers on this work.

Public mention has been made to the effect that the Methodists of Pocatello, Idaho, will look to Salt Lake Contractors for bids on their $100,000 church to be erected in the near future. The plumbing and heating on this building will run to about $10,000.

Plans and specifications for a $40,000 club house to be built by the Young Ladies' Mutual Improvement Association of L. D. S. Church have been sent to Chief Forrester Greeley at Washington, D. C., for approval. This club house is to be built on the forest reserve in Big Cottonwood Canyon. Work will be started on the the approval of the Chief Forrester.

Architects Miller, Wooley, & Evans announce the preparation of plans for remodeling of the sanitarium building. The swimming pools will be converted into store space.

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The high points of a Ruud selling talk arrange themselves logically.

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2. ***The hot water supply is inexhaustible*** Prospect allows water to run two or three minutes;—it's still hot.

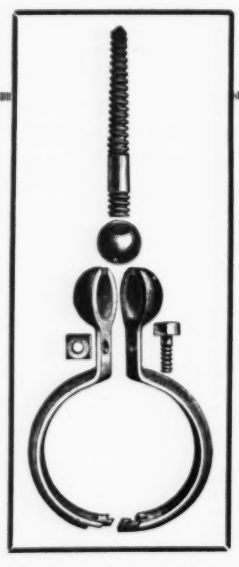
3. ***It burns gas only when hot water is flowing.*** Prospect opens and closes faucet several times. Each time gas is turned on or off.

4. ***It burns only enough gas to heat the water drawn.*** Prospect cuts the flow down to a tiny stream. In a few seconds the thermostat shuts the gas off because water is getting too hot. The water keeps on running and when the temperature is reduced below the predetermined degree, the gas is turned on again by the action of the thermostat.

Let the prospect do all of these things and explain the operation as he does so. It will convince him of the value of Ruud Hot Water Service as nothing else will.

Ruud Manufacturing Company
Pittsburgh, Penna.

Hanna "Ball Joint" Pipe Hanger



Strongest Made Saves Time and Labor

Constructed of the best and heaviest material. Malleable iron.
Can swing in any direction.
Pipe can be raised or lowered without removing hanger.
Write for "Our Silent Salesman"

THE PENN ENGINEERING CO.
PHILADELPHIA, PA.

the upper floors will be brought up-to-date in the form of a modern hotel.

The plumbing and heating on the new eight-story Clift building has been recently completed by the F. W. Spencer Plumbing & Heating Co.

Structural steel is being delivered at the present time preliminary to the building of a government arsenal north of this city. This arsenal will consist of fifteen buildings, costing $5,000,000, according to reliable reports.

Carthey & Dumbeck have secured the plumbing and heating contract on the new Technical High School to be built in this city.

The plumbing contract on the South Side Junior High School has been awarded to Nuttall & Allen Plumbing & Heating Co.

Bids are being received at the present time for plumbing and heating on the proposed Nash Garage, which is to be erected in this city.

Other Cities in the State.

The Mason Lodge of Logan, will remodel its building in the near future. The building will be made up-to-date and the second floor will be converted into lodge rooms.

Plans to rebuild the Ogden Canyon Sanitarium, Ogden, which was recently burned are in progress. This is the second time that this building has been destroyed by fire, and it is planned to construct a fireproof structure.

Plans for a $100,000 high school for Gunnison are now being prepared. The Gunnison Board of Education states that the rapid growth in the population of the city makes it necessary that the school be erected as soon as possible.

Sealed proposals are being received in Delta for the construction of sewer mains and outlets. Plans for this work have been prepared by Caldwell & Richards, 514 Felt Bldg., Salt Lake City, Utah, and they call for 32,300 feet of salt-glazed sewer pipe.

California

San Francisco and Vicinity.

The Master Plumbers' Association of Oakland, Alameda, and Berkeley will hold its thirtieth annual picnic in Berkeley, at John Hinkel Park, on Saturday, September 25th. The program consists of games followed by an outdoor dinner to be cooked and served by the wives of master plumbers. There will be a dance in the evening. George Stoddard, of Berkeley, is chairman of the association. Other officers are: George E. Rodman, secretary; A. H. McKnowlan, treasurer, and L. W. Blake, Charles Naylor, H. G. Newman and W. H. Picard, directors.

Architect Wm. Knowles, Call Building, has awarded a contract to L. D. Frazee, Oakland, for installing a heating system in the residence of P. T. Clay, now in course of construction on Sea View Avenue in Piedmont. It is a three-story concrete structure.

Barrett & Hilp have been awarded the contract for the heating, lighting, plumbing and other work for the three-story basement and mezzanine floor, Class C club and apartment building, being erected by the United Parlor of the Native Sons of the Golden State, on East Stockton 70-76 South Jackson Streets. The contract amounts to $88,575.

W. S. Dinwiddie has been awarded the contract for the installation and alteration of heating and ventilating work on the building of the Liverpool & London & Globe Insurance Co., on California Street. The contract is for $6,990. The contract for the installation and alteration of all plumbing work and fixtures has been awarded to the Turner Co., at its bid of $9,180.

W. H. Hobin, Oakland, has been awarded the contract for the construction of an 8-inch vitrified pipe sewer having 5-inch Y branches, vitrified lamp hole with brick and cast iron top, in Bayo Street, from Maybelle Avenue, to a point 285 feet northwest.

Los Angeles and Vicinity.

An ordinance requiring the maintenance of flush toilets during the construction of any new building or structure has been passed by the Los Angeles City Council and approved by the mayor. The ordinance became effective August 18, 1920. It was drafted by the city attorney with the intention to stop the use of open cesspools at construc-

tion jobs, particularly in the thickley populated districts. As drawn it applies to all the rural annexes. It is understood the City Building Department will suggest some modifications, possibly limiting its application to construction work within a certain distance of a dwelling or occupied building.

A bungalow court consisting of twenty-four four and six-room bungalows will be erected on Sunset Boulevard near Palm Avenue.

J. R. Stead, 4321½ South Park Avenue, has the contract to install plumbing in the following: Residence of J. Fisher, 4132 North Andrews Boulevard; residence 941 West Fifty-third Street; residence of C. T. Tundry, 4809 South Park Avenue and residence of G. Shaw, 192 West Thirty-sixth Street.

Wm. Nies, 4030 South Park Avenue, has the plumbing contracts for the following: Residence, D. W. McLea, 601 West Seventy-fourth Street; residence, C. Robinson, 1415 West Pico Street; three residences, 5468, 5448 Sixth Avenue, and 5738 Chesley Avenue, being erected by the Angeles Mesa Land Co.

F. J. Donnelly, 1031 North Wilton Place, has the contract to install plumbing in the following: Residence, 6673 De Longpre Avenue; residence of M. Scott, 1312 McCadden Place; residence of S. Lane, 1207 Seward Avenue; residence, Mrs. C. Gould, 894 South Bronson Avenue; residence, A. M. Friedman, 891 South Norton Avenue.

R. L. Hinckley Co., 1105 Highland Avenue, has secured the following contracts: Residence, F. M. Buck, 7251 Franklin Avenue; residence, E. C. Dimmick, 523 North Vine Street; Residence of Carter De Haven, 1844 North Vine Street; two residences of F. C. Swartz, 1707 Sixth Avenue.

J. H. McDonough will install the plumbing in the following: Residence, 1346 North Stanley Avenue; residence, 6137 Franklin Avenue; residence, 216 North Dillon Street; residence, 1644 Courtney Street; residence, 2214 Court Street; residence, 1354 East Forty-third Street; residence, 417 South Wilton Place, and three residences being erected by E. H. Hester at 973, 965, 969 North Oxford Avenue.

J. Hokom, 4312 Moneta Avenue, has the plumbing contracts for the following: Residence of S. S. Gross, 6419 Homeward Avenue; residence erected by Los Angeles Finance Co., 1228 Royal Court; residence, 1234 South Manhattan Place; flat building of N. J. Nearing at 2967 Leeward Avenue; residence, R. H. Taylor, 1767 Tamarend Street; residence of E. E. Paramore, 3433 Perlito Street.

George Marble, 1370 East Washington Street, will install the plumbing in the residences of Sarah Johnson, L. C. Myer and John Robinson, all in course of construction.

Other Cities in the State.

Charles Wara, of Reno, Nev., was awarded the contract, at his bid of $4,932, by the trustees of the Susanville (Calif.) Grammar School District for the plumbing in the two-story frame and brick school building now being constructed. J. E. O'Mara, of San Francisco, was awarded the heating contract at $7,271.

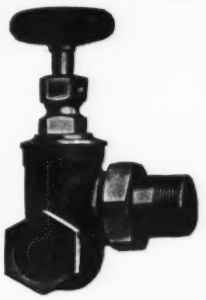
B. A. Newman & Co., of Fresno, have been awarded a contract by the Madera Grammar School District for installing a heating plant in the East Side Grammar School in Madera. Consideration, $4,639.

The City Council of Santa Cruz has awarded a contract to B. Ray Greenfield, of Santa Cruz, for the construction of a 6-inch salt glazed sewer in a portion of Laurel Street, from Felix Street, west a distance of 25 feet, from the south wall line of Laurel Street for a distance of 372 feet to an angle in Laurel Street; thence west 25 feet from the south wall line of Laurel Street 7.3 feet to the end of said sewer.

The contract for all work on a one-story residence owned by B. W. Crandall, Palo Alto, has been filed with George C. Bertschi, contractor. The contract for the plumbing and electrical work amounts to $1,490.50.

It has been announced that alterations and improvements will be made at the S. P. Station Building, at Colorado and Broadway, Pasadena. New equipment will be installed in the lavatories, etc.

The city trustees of Newport Beach, recently adopted a resolution of intention to construct a cement pipe sewer system, septic tank and three sewage pumping stations for the city of Newport Beach. The work is to be done under the Vrooman Act. A contract for the work was awarded some years ago, but the project was abandoned temporarily because of legal technicalities which were raised.



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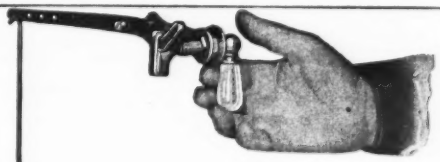

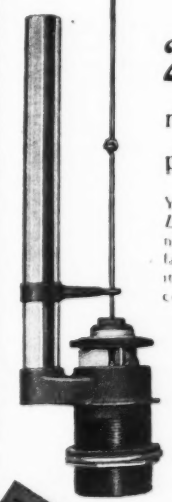

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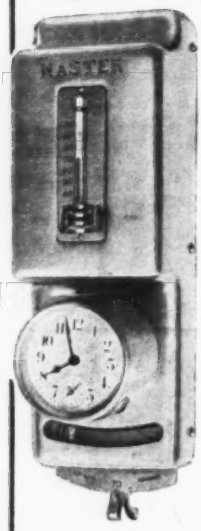

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is the *only* chain pipe wrench made with proof-tested certified chain.

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Washington

Seattle and Vicinity.

Bergh-Griggs Co., 936 Commerce Street, was awarded the heating contract for the 12-story Rust office buildng to be erected in Tacoma. The following are among the larger contracts awarded this firm: Old Soldiers Home at Orting, heating; State School for Girls, Grand Mound, heating and power plant; State Capitol building, Boise, Idaho, two new wings, plumbing and heating; Office building, Olympia, plumbing and heating; American Can Co. building, Portland, Ore., plumbing; St. Joseph hospital, Deer Lodge, Mont., plumbing and heating; Joseph Carman, $200,000 residence, Portland, Ore., plumbing and heating; Northern Pacific railroad shops, remodeling power plant, heating, piping systems and ventilation, Tacoma.

G. A. Weber, 1539 Broadway, has secured the plumbing and heating contracts on the Craft Hotel building, and the heating system for the County Detention Home. The plumbing in the St. Joseph hospital and several residences will also be installed by Mr. Weber.

A. B. Gehri & Co., 1117 Tacoma Avenue, has the contract to install the plumbing in the Merchants Hotel, Park Avenue School, Lincoln Parkffi Church, J. H. Wood apartments, and the School for Girls at Grand Mound.

The Haddow Engineering Co. is to install the plumbing in the new Rust office building that is to be erected in Tacoma. This contract calls for the installation of three hundred fixtures.

Appling Sanitary Engineering Co., 610 North Pine Street, was awarded the plumbing contract on five residences to be erected for A. Mitchell, a seventeen apartment building for C. F. Mohler, the Church of God, and eight residences for the Maryland Realty Co.

Seattle.

L. B. Peeples, manager of the Seattle branch of Crane Co., Chicago, recently spent the week end at Portland, Ore., with F. A. Nitchy, manager of the Portland branch.

Other Cities in the State.

The Spokane school board has awarded a contract for heating in the Logan School Addition to the James Smyth Plumbing Company, on a bid of $10,237, and a contract for plumbing to E. V. Lambert, Spokane, for $1,345. Contract for heating in the New Yardley School was awarded to P. J. Coff, for $2,200, and plumbing to Standard Heating & Plumbing Co., for $2,014.

The School Board of Spokane recently opened bids on the addition to the Mark Whitman School. Low bid for general contract was that of Jasper & McLellan, at $36,000. M. Isbister, Spokane, submitted the lowest of eight bids for heating plant, at $8,390, while P. J. Coff, at $1,400, was the lowest of eight bids for plumbing. Bids have been taken under advisement.

The Rainier National Park Co., Tacoma, have started preliminary work of constructing an addition to Paradise Inn at Rainier National Park. Eighty of the 200 rooms to be built will be constructed during the summer. Fifty of the rooms will have private baths.

The city of Chehalis plans the erection of a modern two-story bath house at Alexander Park. The structure will be equipped with showers, toilets and lockers.

C. H. Lind Co., Tacoma, plans the erection of eight new modern homes in that city, at a cost ranging from $6,000 to $10,000. Each home will be modernly equipped with plumbing and heating plants.

Frank V. Roth, Pullman, will erect a modern apartment house structure in that city, building to contain 14 apartments of three and five rooms each. Entire building will be heated by hot water system.

Bids recently opened for the erection of the new $50,000 church to be built in Ellensburg by the Methodist-Episcopal Church, showed the Modern Plumbing Company of that city, low for the plumbing work, and R. F. Johnson of Ellensburg, low for heating. Contracts were let to low bidders.

The Consumers Central Heating Co., Tacoma, plans the erection of a modern central heating plant to take the place of the plant destroyed early in the summer. The plant will cost approximately $210,000 including equipment.

and will be one of the most modern central heating plants in the state. A two-story concrete building will house it. Three batteries of boilers with capacity of 3,000 to 3,500 horsepower will be installed, and plans for the building provide for addition of more batteries from time to time, as the steam load requirements develop. The contemplated plant will furnish constant service.

South Dakota

Sioux Falls.

The Sanitary Heating & Plumbing Co. is busy gathering material preparatory to starting work on the $1,000,000 Columbus College Building.

A distressed feeling of unrest is prevalent among the journeymen plumbers and fitters here, but as the harvests progress, the building outlook becomes more and more favorable.

A stadium with all bath and toilet accessories will soon be erected in Sioux Falls.

Cliff Smith is busy with the installation of plumbing and heating in a new $25,000 residence being erected here. He has recently completed the plumbing in the new fire hall.

A. D. Bowen is completing the plumbing and heating installation in the Williams and Nettleton College Building.

Mitchell.

Moriarty Bros. have started work on the City Fire Hall.

Bids were opened last week on the new Corn Palace Building. This is to replace the old and justly celebrated Corn Palce of South Dakota. Over forty vitreous closets and a large number of urinals and lavoratories, etc., as well as a fan system of heating will be installed.

Austin & Co. and Wm. Pratt are being kept busy with new work, and a considerable number of overhauling jobs.

Other Cities in the State.

F. V. Stone, Humboldt, is installing the plumbing and heating in the new Catholic school, and in ten residences being erected here. Mr. Stone is also laying six blocks of new water main.

J. W. Chase & Co., Parker, have secured the contract to install plumbing in the Central school building.

Minnesota

Minneapolis.

Business in plumbing and heating is at a low ebb in Minneapolis and St. Paul. Very few jobs are being figured, and a great deal of work is being postponed until next year. In the meantime, there is a decided shortage of homes and apartments. Old buildings are being equipped with plumbing appliances so as to make them usable, and many of the summer houses at nearby lake resorts are being put into condition so that people will be able to live in them throughout the coming winter.

Hughes Heating and Plumbing Co., 1514 E. Franklin Avenue, has contracts for the plumbing in the Martinson residence at 2817 Fortieth Avenue, So., and for plumbing and heating in the addition to the Franklin Garage at 1526 East Franklin Avenue.

W. A. Quinn, 2017 Fourth Ave., So., has contracts for the plumbing and heating in a number of first-class dwellings being erected by the Mapes & Ertsgard Co., at Thirty-fourth Street and Hennepin Avenue.

Robert Simpson & Co., 908 Hawthorne Avenue, have the contracts for plumbing and heating in the new addition to the Maternity Hospital at 2201 Western Avenue.

C. E. Hasey, 300 Builders' Exchange Building, has the contracts for the plumbing and heating in the Auto Intelligence Association garage building on Fourth Avenue, South.

Sweigert & Co., 1804 Washington Avenue, No., are installing the plumbing in the new Picture Theater at Twentieth Avenue, North, and Dupont Street.

B. H. Nelson, 738 East Lake Street, has the contract for the installation of plumbing in the Albert Anderson duplex at Grand Avenue and Thirty-fifth Street.

The Standing of any Dealer

depends on the goods he sells and the service they render.

This is as sure as taxes and that "long, long journey."

Dealers installing the

Patterson System of Water Heating

are always "Ace High"—easily so.

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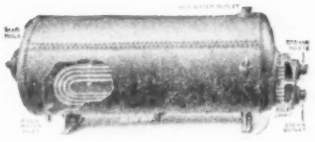

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The most serviceable and convenient Pipe rest made.

Fits any soil pipe—standard or extra heavy.

Worth double its cost for taking out a cracked pipe.

No disappointment if you forget to put the Pipe Rest on before you calk the joint.

Fine thing for down spouts and soil pipe work in brick chases.

Furnished in the following sizes:

2-inch size,	$0.40 net
3-inch size,	.45 net
4-inch size,	.50 net
5-inch size,	.85 net
6-inch size,	1.10 net
8-inch size,	2.00 net
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For Sale by All Jobbers.

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MANUFACTURERS OF

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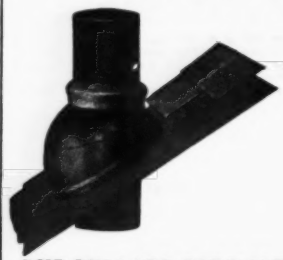
ROCK ISLAND, ILL.

NO ROOF IS SUPERIOR TO ITS FLANGE



Therefore, some PLUMBER is the father of every leaky roof.

The Bullard Roof Flange

is acknowledged as the only PERFECT FLANGE by busy men who have made satisfying installations.

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SHOWERS
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TRADE MARK.

Let Sirocco Engineering service solve your ventilating, heating and cooling problems. Send for catalog.

AMERICAN BLOWER COMPANY
DETROIT MICHIGAN U.S.A.

CRANE
BRASS VALVES

Pennsylvania

Pittsburgh and Vicinity.

The Stinson-Kennedy Co. has been awarded the plumbing contract on the additions to the West End Power Building at North Trafford being erected by the Westinghouse Electric Manufacturing Co.

The building labor question has been finally settled in Pittsburgh, the employers at a mass meeting held at the Builders' Exchange granting hod carriers, mortar mixers and scaffold builders $1.00 an hour. Common laborers, including brick, concrete and top coat wheelers are to receive 80 cents an hour. Time and one-half is to be paid for overtime during the week and double time on Sundays and holidays. Mortar mixers are to receive 50 cents additional if they prepare mortar before starting time, but the time is not to exceed thirty minutes.

Lectures on Trade Extension Forms and Bookkeeping Systems have been started by the Master Plumbers' Association at the regular meetings. General discussion on the business chart opened these talks at the last meeting. It is the plan of the association to continue these lectures during the winter months to increase interest in the meetings.

Plans have been completed for the Pittsburgh Master Plumbers' annual picnic, which is to be held on Saturday, September 11th. The sporting program for the afternoon has been placed in the hands of T. Marshall. A ball game between the masters and the supply men is to be arranged. Mr. Zilliox has charge of the dancing, which will start at 2 o'clock in the afternoon, and immediately after the dinner in the evening.

Employes of the National Tube Co. held their annual outing Saturday, August 28th, at Kenwood Park. The program included sports of all kinds, dancing, band concert and refreshments. Transportation to and from the park was furnished by the company.

Canada

PROVINCE OF ONTARIO.

Toronto.

W. J. McGuire, 91 Jarvis Street, was the successful bidder on the contract to install the plumbing in the large addition that is to be erected to the King Edward Hotel in Toronto.

Ottawa.

The period of despression, which has marked the plumbing and heating trade locally for the past month, is even more evident at present. While there are a number of contracts to be awarded, the high cost of building materials and in particular a most unprecedented scarcity of cement have led to many calls for tenders being delayed, some of them being held over until next Spring.

Practically all the work under way now is in the nature of repairs or alterations, and some of the local firms have found it necessary to lay off some plumbers.

The trade, however, is generally hopeful that a number of the contracts, now being held up, will soon be awarded.

Hamilton.

On Saturday, August 14th, the master plumbers of Hamilton, held their annual picnic at Wasbasso Park, accompanied by the journeymen, who were also invited. Sports were indulged in and a very enjoyable afternoon was spent.

James Saynor has the contract to install plumbing in the Moodie Apartments to be erected on Emerald Street, South.

J. Luxon & Co. have secured the plumbing and heating contract on the Northcote residence, on Beulah Avenue.

George Stevenson is remodeling the plumbing work in the Boys' Home on Stinson Street, and has the work on the Chipman Holton Office Building on Cannon Street.

F. Mullens has secured the plumbing work to be done on the new Roman Catholic school building on Brittania Avenue.

WELDING AS APPLIED TO THE PLUMBING AND HEATING FIELD.

(Continued from Page 430.)

and altogether there were about sixty taking the course which also included lead burning. This course will be given again this year, beginning in October, and along with it will be some advanced work in welding. Whether we like it or not, there is going to be more welding done in connection with this business, and unless we are prepared to do it, someone else will."

M. R. Semmer, of the Air Reduction Sales Company, who was one of the instructors at the Ralston School, was very enthusiastic over the progress made by the plumbers and steamfitters. "A few of the men," said Mr. Semmer, "did little more than loaf around and look on, but most of them showed a real interest in the work and proved very apt students. They did some remarkably good work, and are prepared to handle almost anything in the way of cutting and welding that they will meet in their trade. It is not difficult to learn, but requires care and close application to the work in hand. After the advanced course that will be given this year, the men should be able to do very good work on any kind of welding job that the plumbing and heating contractor will require."

The welding course given at the Ralston school has been a big help to the plumbing and heating contractors of Pittsburgh, as it enables them to have their own welding equipment without having a special man to operate it. Now whenever they need it, they have a man to use it who can go back to other work as soon as he is through with it. The equipment itself is not expensive, it is chiefly a matter of getting a man competent to operate it successfully, who can be used elsewhere when there is no welding and cutting to do.

There are a great many other schools throughout the country for furnishing instruction in welding to plumbers, steamfitters and sheet metal workers, some of them on the same basis as the Ralston school, some maintained entirely by manufacturers of welding equipment, and some which are a branch of private trade schools. At the Carnegie Institute of Technology, S. E. Dibble, head of the Department of Heating, Ventilating and Sanitation, gives instruction in welding. This school gives the Degree of Bachelor of Science to the graduate of their four year course in heating, ventilating and sanitation. During the four years the students receive one hundred hours' instruction in welding, and additional instruction in chemistry, metallurgy, expansion and contraction of metals, etc. "Last summer," said Mr. Dibble, "we ran 1,500 ft. of steam line from which we took off 16 branches, all of which we welded. We had 8 lines going into a header and there is not a thread used in connection with the job. Last winter we also gave some special instruction in the welding of pipe coils. There will be much more welding in connection with the plumbing and heating trades in the future, and the plumber and steamfitter may so well learn how to do it to get the best results, and thus be prepared for the new order of things."

The field of welding in general is a big one, and to be efficient in the use of all the different kinds of methods and apparatus on all classes of work would require a long period of training. France insists on an eight year course in which every phase of the subject is gone into thoroughly. England also has a long course along the same lines, and no doubt it is necessary to cover the whole field. Canada has attempted to make all around welders in a few weeks with very unsatisfactory results. Consequently many of the larger Canadian firms are doing much the same as quite a few of the large American industries are doing, and that is training their own men to do the kind of work that falls within their particular line of business. This ordinarily does no require a long course

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Money invested in the SMOKABATE means 15 to 35 per cent saving in fuel consumption.
Our method of firing is but once every five to seven hours.
Keep your customers satisfied by giving them an even temperature of heat.
A system which shows more efficiency with Illinois and Indiana coal than another plant burning Pocahontas.
Burns 90 per cent of the 40 per cent volatile matter in Illinois and Indiana coal.
Actually eliminates soot.
Think these facts over. It means dollars to you.
Every user more than satisfied.
Call, Phone or Write for more information.
Oh Yes, It pays for itself in less than a firing season.

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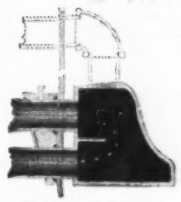
Smith's "CRESCENT" Heater



Sectional View

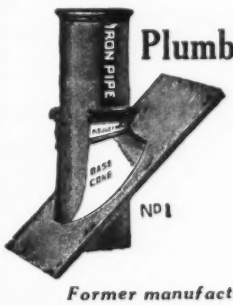
Plenty of HOT WATER day or night. No cost for Fuel. No Gas Bills. For Steam and Water Boilers or Furnaces. Can be used in any Heater. Iron or Brass. Occupies less space. Has larger fire surface. Easier to install and will heat more water in less time than any other heater.

Three sizes: 50, 75 and 100 Gallons.

Write for Catalogues of our different Heaters.

CHARLES SMITH
65 West Lake Street CHICAGO

The Hessler
Adjustable
Plumbers' Roof Flange



It is the best one. Write for prices, to nearest jobber or to

H. E. HESSLER CO.
Syracuse, N. Y

Former manufacturer of the McGuire

Simplify Your Heating Jobs

Whenever you install the "O-E" Perfect Heating System (Three in One) your customer not only gets more for his money, but the simplest, most flexible system made.

The "O-E" Perfect Air Eliminator and Vacuum Valve remains open as long as there is any air in the system, but port closes the minute any heat comes in contact with it. Always works. Cannot stick or buckle. Fool-proof.

Write for Booklet "A."

O-E SPECIALTY MANUFACTURING CO.
854 Third Street, Milwaukee, Wis., U. S. A.

Insurance

Against Flooded Basements

Where the Signet Drain is installed there can be no back water.

A perfectly reliable trap that automatically keeps out sewerage, gas and germs.

TRADE MARK SIGNET REG. U.S. PAT. OFF.

Pat. Dec. 8, 1914

Write for details

Always works. Nothing to get out of order. Brass working parts submerged.

The Signet is clean, sanitary, simple, durable and efficient.

CRAMPTON-FARLEY BRASS CO.
KANSAS CITY, MO.

Milwaukee

Cast Brass

Shower Heads

With Removable Face

Made with or without Ball Joint in the following sizes:

3 in., 4 in., 4½ in., 5 in., 6 in., 6½ in. and 8 in.

As good as it is possible to make a shower head.

D200

Order From Your Jobber. Specify the Milwaukee. Made by

Milwaukee Flush Valve Co., Milwaukee, Wis.

The Detroit Water Heater

Kerosene Burner

Will not carbon, clog or overflow. This is proven by actual use under all conditions.

DETROIT HEATER CORPORATION
715-717-719 Grand River Ave. Detroit, Mich.

SISSON

Insertable Joint

is indispensable to plumbers for connecting up new fixtures to soil pipe, or for use where a defective length or cracked fitting must be taken out.

Saves springing stack and removing whole lengths of pipe.

You cannot afford to get along without the SISSON. Ask for prices and particulars.

R. ESTABROOK'S SONS, 1st and C Sts. South Boston, Mass

of instruction. The welding required in the plumbing and heating business is generally of the simplest nature, and may be done very successfully with a short period of instruction. "If I couldn't teach a man in half a day to do successfully the welding that will ordinarily be required in the plumbing and heating business, I would give that man up as hopeless," said W. H. Sullivan, in charge of the Philadelphia office of the E-G Welding & Cutting Co. "When the pipe work was being done in the General Fire Extinguisher Co.'s building in this city, I took over and demonstrated our welding and cutting equipment. In half an hour they were cutting and welding pipe which ran as high as 10-inch. Welding is the thing for pipe lines. All the pipe for oil refineries is being welded now, as well as that used by gas companies and similar lines of business."

Oxy-acetylene equipment for cutting and welding is a practical thing for the plumbing, heating, and sheet metal contractor. Quite a few already have such equipment, and many others who are now calling on others when they have welding and cutting work to do, will provide themselves with welding and cutting apparatus as soon as they can get workmen who can operate it successfully, and be used on other work when not needed in welding and cutting. The journeyman plumber and steamfitter is beginning to realize that welding and cutting will be done more extensively in the future, and is preparing himself for it. He must either do this or see much of the work go to other trades. Nor is the progressive contractor going to lose business that rightfully belongs to him if he can possibly prevent it. Of course, on much of the plumbing and heating contractor's work, welding is impractical. It will never do away with the plumber and steamfitter, but it can be used to great advantage in many cases, and, as it is being specified by quite a few firms for underground and other large pipe lines and tank work, it is well to be prepared to do it properly and keep the work within the trade.

NOTES ON THE INSTALLATION OF HOT WATER HEATING SYSTEMS IN FINE RESIDENCES.

(Continued from Page 436.)

charging him. Do not doll up the job with a lot of free knick-knacks and extras, gratis, in the hope of gaining his good will. He will not pay you more for the job you have agreed to put in; so give him what he pays for, and no more—and be the best collector in your town. He will think a lot more of you, and have oodles of respect for your ability.

In selling a job, and submitting specifications, avoid extravagant promises of performance; never guarantee the amount of fuel to be used. Tell him what he can reasonably expect only. Remember that it is his house, not yours; he is going to have full charge of the coal shovel and the thermometer. Make your specification and contract fully descriptive, but cut out useless verbiage. Get on the job early, and get away as soon as possible, consistent with fully completing it. Do not leave any hang-overs. AND COLLECT. John T. Bradley, whose reputation for fine work is high, and who has the whole United States as his friend, says: "No job works until it is paid for."

Active steps to limit the price of coal in various parts of the country will be begun shortly by the Department of Justice, it was declared this week by officials of the department. Reports of the Federal Trade Commission covering the costs of production and distribution of coal are being studied by experts of the department, it was stated, and data being compiled upon which to base instructions to district attorneys governing the prosecution of coal profiteering cases.

WHY STANDARDIZATION IS ESSENTIAL.

(Continued from Page 432.)

of realization. At each meeting of this or some other allied association some progress has been made. Something has been achieved to meet the demand of modern practice. Something, but not enough. We know that standardization means efficiency and economy in practice. We also realize to sacrifice efficiency and economy would be false economy. Many agencies have been at work studying to bring about working standards. Standards that are universally applicable to all buildings in all cities and rural communities. Standards that are feasible and consistent with the factor of safety, so necessary when the comfort, convenience and health of the people are concerned. Standards that will make it possible for any state or city to apply the same kind of regulations to prevent the same kind of insanitary and unhealthful conditions. The great trouble is that there has been no unity of action, no central point of co-operation. The various organizations have gone along in their own way without that co-operation of effort which is so necessary for any enterprise or movement.

The National Bureau of Standardization has correlated the efforts of a dozen organizations creating that central point of co-operation and unity of action. This Bureau has accomplished a great deal of real constructive work. To its officers and committees we owe an everlasting debt of gratitude for their tireless energy. Service, self-sacrifice and co-operation has been the slogan, resulting in constructive and progressive accomplishment. Selfishness of position, personal credit or personal benefit have been cast aside in their efforts to serve, not their industries, not their organizations, not themselves, but for the progress of an industry upon which all civilization depends.

In conclusion, we desire to offer several recommendations which I trust will receive your careful consideration.

Recommendations.

1st. That the basis for a set of standards be completed at the earliest possible date.

2nd. That upon completion sufficient copies be printed and forwarded to the National Association of Master Plumbers, American Society of Sanitary Engineering, Central Supply Association, Sanitary Potters' Association, Enameled Sanitary Ware Manufacturing Association, Eastern Supply Association, National Association of Brass Manufacturers, Carbon Club, Soil Pipe Manufacturers' Association, trade papers, boards of health, health commissioners, plumbing inspectors, and any other person or persons interested, for their consideration, criticism and recommendation.

3rd. That criticism and recommendation be solicited upon the various titles and sections.

4th. These criticisms should be made in writing, using separate sheets of paper for each section criticised, in order that they may be filed systematically and taken up in regular order.

5th. That after allowing a reasonable length of time for criticisms to be made and forwarded to the Chairman of the Construction Committee and that the entire matter be submitted to the National Bureau of Standardization for ratification.

Charles Huber Called by Death.

Charles Huber, president and founder of the Charles Huber & Sons Plumbing Co., 394 South Third Street, Columbus, O., died at his home near that city on Sunday, August 15th, of heart trouble, in his 66th year. Mr. Huber had been engaged in the plumbing business in Columbus since 1888, and he was a highly esteemed member of the Columbus Master Plumbers' Association. His wife, two sons and a daughter survive him.

SAACO

Did you read our full page advertisement on the Ideal Insertable Pipe Joint in the Aug. 21 issue of "Domestic Engineering?"

Sanitary Company of America

LINFIELD, PA.

BRANCH OFFICES:

Philadelphia—940 Drexel Bldg. New York—50 Church St.
Boston—432 Rice Bldg. Pittsburgh—1404 Arrott Bldg.
Factories: Linfield, Pa. and East Greenfield, Pa.

FOR lasting quality and true capacity use *"KOVEN"* Pure Iron, Double Row Riveted, Galvanized Range Boilers, or *NACO* Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK

EXCELSO WATER HEATER

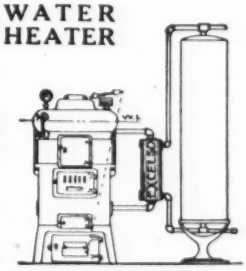
Heats domestic water just right at minimum cost.

A simple, one-piece casting connected below water line on outside of steam and vapor boilers. Does away with fire-pot coils.

Three sizes, for 40, 70 and 100 gals. capacities.

An easy seller and big profit maker.

Write for details.



Showing Heater Connected to a Vertical Type Boiler

EXCELSO SPECIALTY WORKS
119 CLINTON ST. BUFFALO, NEW YORK

RAYMOND LEAD WORKS

735 So. Washtenaw Ave.
CHICAGO

Manufacturers

PLUMBERS
LEAD
GOODS

PROMPT DELIVERIES
LOWEST PRICES

THE BRUNSWICK-BALKE-COLLENDER CO.
WHALEBONE-ITE
CLOSET SEATS
THE EFFICIENT CLOSET SEAT
HEAVY COVERING ASSURES LIFE-LONG SERVICE — ACID-PROOF — IMPERVIOUS — STANDS ABUSE LIKE A BOWLING BALL — CONCEALED HINGES — INDISPUTABLE QUALITY
RECOMMEND THIS PROFIT MAKER
ASK YOUR JOBBER OR SEAT DEPT.
THE BRUNSWICK-BALKE-COLLENDER CO
1623 SO. WABASH AVE. CHICAGO

Here's Your New Catalog, Mr. Plumber
Send for It Quick!
We have never issued anything nearly as valuable to you as this NEW CATALOG OF PAUL SYSTEMS OF WATER SUPPLY.
And it's for YOU. All you have to do is to ask for it and we'll be more than glad to send it to you post-haste.
Full of illustrations and selling information, covering everything you want to know about these popular water systems.
Ft. Wayne Engineering & Mfg. Co.
1718 N. Harrison St.
FORT WAYNE, INDIANA

THE NEW PARROTT gives "The Quickest, Surest, Cheapest Hot Water in the World." Take it as a threat, a promise, or anything you wish, but the New Parrott will soon be the leading automatic gas water heater in this country—for the simple reason that it is the BEST for every home use. It will gain this leadership the quicker with your help, that's all. "The Story of the Parrott" is yours for the asking.
PARROTT HEATER COMPANY
224 21st STREET DETROIT, MICH.

One of the 105 Styles of American Cast N. P. Lavatory Traps
The artistic design and smooth finish of AMERICAN Traps will appeal instantly to your customers.

Made perfectly smooth inside and out—deep water seal, full sized waterway.
You can depend upon the AMERICAN Line.
Write for catalog.
Fig. 301
AMERICAN SANITARY MANUFACTURING CO.
Abingdon, Illinois
Manufacturers of Fine N. P. Brass Specialties

COMPARATIVE EFFICIENCY OF VENTED HALF-S TRAPS, AND NON-VENTED, ANTI-SIPHON, NON-SIPHONING OR RE-SEALING TRAPS.

(Continued from Page 443.)

and the stack opening above the roof was 1⅞-inch, at the completion of the first, second, and third 5 second flushing periods. The proceedure is as follows:

In the upper right of Appendix 3, sheet 1, covering the Geco trap, note the given rate of discharge of 2½ gallons per second for the series of curves marked 1⅞-inch opening.

On the left of the set of curves note "Discharge Period In Seconds", for the 5, 10, and 15 second periods.

To determine the percentage seal loss of the ½S trap after the first 5 second flush read horizontally along the 5 second line to its intersection with the dash line marked 1⅞-inch opening, then downward, and read off the percentage loss of seal of the ½S trap to be 22 per cent.

Continue again along the 5 second horizontal line to the right to its intersection with the full curve marked 1⅞-inch opening and read downward, giving the percentage loss of seal of the Geco trap as 88 per cent.

To determine the losses after the second and third flushes, read horizontally along the 10 and 15 second lines respectively, until they intersect the same curves. You will note the following losses to have taken place in the tests:

After 2nd flush, ½S trap 27 per cent.
Geco trap 92½ per cent.
After 3rd flush, ½S trap 27½ per cent.
Geco trap 94¼ per cent.

The percentage losses of other traps may be determined in a similarly easy way from the 10 sheets of Appendix 3. It would lead to unwarranted lengthy tables to attempt a tabulation of the percentage losses of all traps, but the following tables give these losses for the Geco, U. S. Housing Corporation, and ½S vented traps.

A. Rate of Discharge = 5 Gallons per Second.

Name of Trap.	Diameter of Stack Openings 4"	1⅞"	1"
After 1st flush.			
Geco	95.5%	97%	100%
U. S. H. C.	100%	100%	100%
½S	25%	69%	Not plotted
After 2nd flush.			
Geco	100%	100%	100%
U. S. H. C.	100%	100%	100%
½S	25%	88.5%	Not plotted
After 3rd flush.			
Geco	100%	100%	100%
U. S. H. C.	100%	100%	100%
½S	25%	91.5%	Not plotted

B. Rate of Discharge = 2½ Gallons Per Second.

Name of Trap	Diameter of Stack Openings 4"	1⅞"	1"	⅞"
After 1st flush.				
Geco	35%	88%	91%	100%
U. S. H. C.	93%	95.5%	100%	100%
½S	11%	22%	27.5%	38.5%
After 2nd flush.				
Geco	41%	92.5%	92.5%	100%
U. S. H. C.	98%	100%	100%	100%
½S	19%	27.5%	27.5%	44.5%
After 3rd flush.				
Geco	41%	93%	94%	100%
U. S. H. C.	100%	100%	100%	100%
½S	22%	27.5%	33%	58.5%

C. Rate of Discharge = 12/3 Gallons Per Second.

After 1st flush				
Geco	15.8%	26.5%	35%	92.5%
U. S. H. C.	25.5%	31%	44.5%	100%
½S	00.0%	11%	11%	16.5%
After 2nd flush.				
Geco	17.5%	31%	55%	100%
U. S. H. C.	29.5%	34.5%	67.5%	100%
½S	2.5%	11%	16.5%	22.5%

After 3rd flush.				
Geco	20.5%	33.5%	75%	100%
U. S. H. C.	31%	38%	78%	100%
½S	8.5%	11%	19%	22.5%

D. Rate of Discharge = ⅝ Gallon Per Second.

After 1st flush				
Geco	10.3%	11.8%	Not plotted	31%
U. S. H. C.	6.8%	13.8%	13.8%	34.5%
½S	00.0%	00.0%	5.5%	13.8%
After 2nd flush.				
Geco	11.6%	13.2%	Not plotted	33.8%
U. S. H. C.	6.8%	17.2%	19%	36.3%
½S	00.0%	1.8%	8.3%	13.8%
After 3rd flush.				
Geco	11.6%	13.2%	Not plotted	35.3%
U. S. H. C.	6.8%	17.2%	19%	38%
½S	00.0%	5.5%	8.3%	13.8%

From these tables it is at once apparent, as it is from the curves, that the percentage losses of seal of the two anti-siphon traps were far in excess of those of the vented ½S traps, so far indeed in many instances that their inherent weakness to siphonage, inch for inch of depth of seal when compared with the ½S trap becomes striking and beyond doubt convincing. No better proof can possibly be asked than this to show the comparative inherent weakness of the anti-siphon type and the inherent strength of the ½S vented type of traps.

It is interesting to note from the table that in general the tests showed greater percentage losses of seal of the U. S. Housing Corporation trap than of the Geco trap. It would seem therefor that the design of the former produces less resistance to siphonage, inch for inch of depth of seal, than the latter; but even the latter proved its practical worthlessness in comparison with the ½S vented trap, when it lost 100 per cent of its deep seal of 4¼-inch as shown in table A, as against the ½S trap only 25 per cent of its shallow seal of 2¼-inch; the U. S. Housing Corporation trap made, as stated above, a still worse demonstration, as shown in table B when it lost 100 per cent of its seal against 22 per cent loss of the ½S trap.

Throughout the tests, the recorded trap seal percentage losses of the anti-siphon traps run as high as 15 times those of the vented trap seal losses.

This same general condition obtained in the comparison of the percentage of trap seal losses of all of the anti-siphon traps, some showing at times slightly greater strength, at times even much greater weakness.

I am satisfied that the tests showed the absolute incapability of the anti-siphon traps to adjust themselves to the strain of meeting the conditions of actual service; they lacked the resiliency required to fill the vacuum created in the pipe lines, without spilling their seals to the danger point. Neither can this be wondered at; water is unyielding and objects to being compressed and expanded, whereas air, supplied through the vent connection of the ½S trap is springy; the slightest force moves it, compresses it, expands it; it rushes in when needed and recedes as rapidly when present in excess. I doubt, if ever any anti-siphon trap can be designed and built on otherwise scientific principles, which will have that capacity of quick adjustment to the unnatural conditions of atmospheric positive or negative pressure, created within the drainage system of a building whenever plumbing fixtures are discharged. I say this advisedly, for I found in the 4-inch soil pipe stack at 366 West Broadway the simultaneous existence of a vacuum of 36 inches, another vacuum of 9½ inches, and a positive pressure of 40 inches of water column during the same conditions of discharge and otherwise at different parts of the stack; and I found a variation of 13½ inches water column during the same discharge at the same location, namely on the

Boiler Se-Ment-Ol

The reliable leak-repairer for Boilers and Heating Systems. Leak-proof your new installations and fix old ones with this standard repairer.

Ask your jobber

THE NORTHWESTERN CHEMICAL CO.
Marietta, Ohio and Montreal, Canada

"Mon-Seal"

"THE CLEANER CLOSET"
Patent Pending

Made of "Castex" Whitest Vitrified China. A closet of the washdown type but infinitely better.

See your nearest jobber

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GAUGE GLASS
IMMEDIATE DELIVERY
STANDARD AND HIGH PRESSURE

Our High Pressure Glasses have fused ends and are annealed by special process. Try them for highest steam pressures.

We manufacture Automatic Air Valves and Hot Water Thermometers.

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Plumbing Estimates and Contracts

is the title of a book compiled by J. J. Cosgrove. Contains 204 pages of useful information. Tells how to read specifications and make accurate estimates; gives large number of comprehensive tables and a great deal of other data the modern plumber can use to advantage.

Adopted as a text book in more than thirty of the largest universities and colleges in the U. S.

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The Line of Least Resistance

You can save a lot of time and labor for yourself and your workmen by using the

B&B PIPE CUTTER WHEEL

Guaranteed to cut through pipe with fewer turns of cutter than other makes. Does not spread metal apart. Makes a clear, clean cut without burr. Stands all kinds of hard usage.

Made of best tool steel scientifically drawn and hardened. Fits all standard pipe cutters.

Get a B & B Cutter Wheel from your jobber. Make any test you wish. Ask about our positive guarantee.

B & B TOOL & MACHINE WORKS

519 W. VAN BUREN STREET CHICAGO

Cutter Wheel Specialists

Yes, It's Different

The OVERTON Adjustable Roof Flashing is in a class all its own. A special feature is the "V" which forms a metal spring. This assures a perfectly air-tight joint.

Hugs any pipe—water tight. Fits any angle. Adjusts itself without turning or twisting.

Galvanized iron or copper.

Write for descriptive matter.

Manufactured by

Duluth Corrugating & Roofing Co., Duluth, Minn.

"BRE HYGIENIC" SEAT

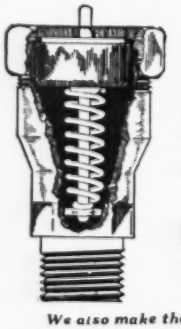
PATENTED DECEMBER 7, 1915

No. 213

Write for descriptive circular telling why this steel reinforced "BRE HYGIENIC" seat, open front and back is guaranteed not to come apart.

BRE Mfg. Co., Hyde Park Dist., Boston, Mass.

The Donnelly Automatic Vacuum Valve



insures hot water boilers against collapse through syphonage.

Can be used on closed tanks, vats, etc., where a vacuum is likely to occur.

Set up ready to install when you get it.

Write for Circular

DONNELLY MFG. CO.

29 Mills Street, Malden, Mass.

We also make the Donnelly Hot Water Relief Valve

second floor. In a five-story building such as was used for our tests at 366 West Broadway, the atmospheric pressure within the soil stack, due to plumbing fixture discharges, varied from about 30 to 40 ounces positive to about an equal amount negative. This means that within the same stack of a 5-story building there exist at the same time air pressures differing from each other as much as 5 pounds. It is a matter for conjecture how great this discharge must be in a tall office building; and yet the "simplified plumbing" advocates would have us believe that there are traps in existence which, without special air relief or supply or vent pipes, will adapt their 4-inch to 6-inch water seals promptly, unfailingly, and successfully to such tremendous air pressure variations which I doubt not reach half an atmosphere at times, in our skyscrapers. Such statements seem to me, in the present state of the art at least, preposterous, wild.

(To be Continued.)

"ALL MODERN CONVENIENCES" ON THE FARM.

(Continued from Page 439.)

The immense importance of artificial watering in gardening I have demonstrated in my own garden many times. There is, in my currant plantation, one clump that gets watered a good many times during each season, because it adjoins the part of the garden I water. For that reason it bears, every year, more fruit than any other clump in the garden; and it has been doing that for twenty years. This year it produced 10 pounds and 2 ounces of currants. I sold them to a local grocer at 16 cents per pound, or $1.62. The area occupied by the bush was 30 square feet. One acre of such bushes would have brought in $2,352.24. Such results cannot be attained without water in abundance, applied not only before fruiting but later in the season when the plant is making growth for next year's crop.

This is the reason why there is going to be, in the near future, an enormous demand for overhead watering systems. All of what has been said in the foregoing has a great significance to progressive plumbing and heating contractors located in or near farming communities. When they understand the benefits to be derived from modern equipment, then they can talk intelligently and convincingly to farmers. And that means business, mighty profitable business because one sale will lead to another. You rarely hear of any merchant complaining of "deadbeat" farmers. For this, and many other reasons, the plumbing and heating contractor should get busy developing rural business.

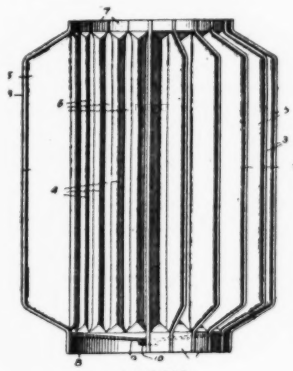
Advices from Berlin to the Department of Commerce states that the establishment of a regular air service between Copenhagen, Hamburg, Amsterdam and London has been agreed upon by Danish, German, British and Dutch aero companies. Four trips a week are planned. Bids for aerial postal service between Holland and England have been called for by the Dutch Director of Post and Telegraphs, the advices state.

Complete returns made to the United States Geological Survey, Department of the Interior, from the building department of 141 of the larger cities of the country show a large increase in building operations in 1919 compared with 1918. The building operations in these cities in 1919 cost $1,302,998,607, as against $430,014,365 in 1918, an increase of 202 per cent. Much of this increase is due, of course, to the increase in the cost of labor and materials, but this does not cover all of it, for the number of permits for buildings increased from 210,538 to 362,811, or 72 per cent. The average cost per permit or building increased from $2,042 in 1918 to $3,591 in 1919, and the average cost of new construction increased from $3,309 in 1918 to $5,088 in 1919.

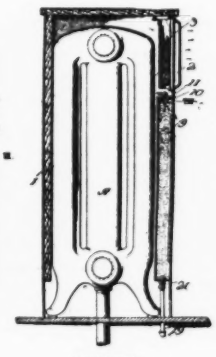
Patents

Heating Department.

1,348,328. Method of Making Radiating Casings. Charles Sonneborn, West Pittsburgh, Pa., assignor to Pressed Metal Radiator Co., a corporation of Pennsylvania. In the method of making radiating casings, the steps which consist in pressing unit blanks to form thereon offset edge portions extending along one of their sides and cross their ends, assembling a plurality of such units with the offset edge portions of adjacent units in contact, and welding together said offset portions to form a body having hollow radiating projections.

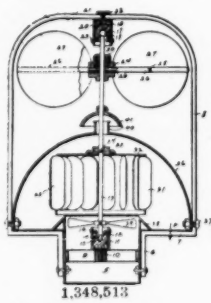


1,348,328.

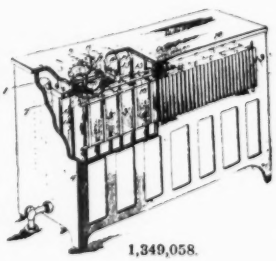


1,349,059

1,349,059. Radiator Casing in Combination With Humidifying Devices. Weston M. Fulton, Knoxville, Tenn., assignor to the Fulton Co., Knoxville, Tenn., a corporation of Maine. A radiator casing provided with an air outlet opening in a side wall thereof, a vaporizing pan in said side wall below said opening, a damper for said opening, a damper for controlling the escape of vapor from said pan, and a common controlling means for said dampers.



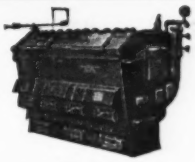
1,348,513



1,349,058.

1,348,513. Ventilator. Worthie W. Morey, Columbus, Ohio. A ventilator comprising a stem, a weather hood of inverted bowl shape and of considerably greater diameter than the stem, overlaying said stem and having its lower edge disposed below the level of the top of the stem, a centrifugal fan of inverted cup shape disposed above the mouth of the stem the hollow interior thereof receiving the air from said stem, said fan comprising blades which eject the air from the interior thereof to the interior of the weather hood, the curved walls of the latter deflecting said air downwardly and out of the space between the stem and the lower part of the weather hood, an axially acting

ECONOMY



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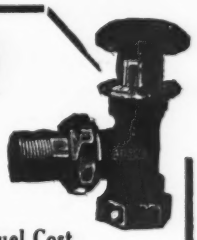

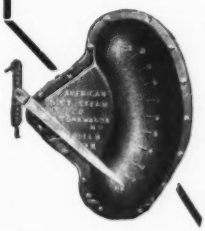

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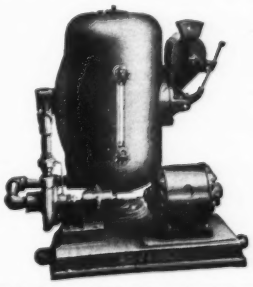

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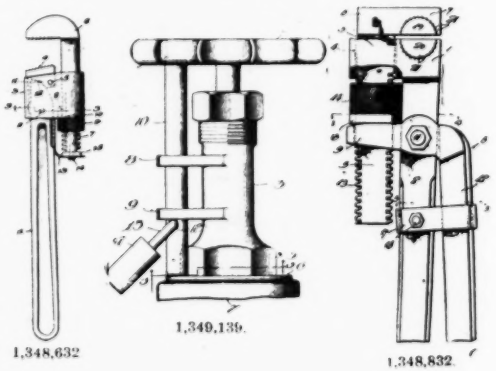
fan within the stem, for directing air into the interior of the centrifugal fan, a spindle by which both of said fans are carried, and a propeller upon said spindle.

1,349,058. Heat Regulating Means. Weston M. Fulton, Knoxville, Tenn., assignor to the Fulton Co., Knoxville, Tenn., a corporation of Maine. In combination, a radiator casing provided with one or more dampers, indicating means and a scale graduated to indicate amounts to heat associated with said indicating means, and damper-operating means operatively connected with said indicating means and constructed to move said dampers to supply amounts of heat in conformity with the indications of said first-named means on said scale.

1,348,632. Wrench. Horace L. Dickson, Toronto, Ontario, Canada. A wrench comprising a carrier frame carrying a jaw, a handle connected therewith, a co-operating movable jaw having a shank slidable through the frame, a spring secured to the end face of the shank and having one end portion deflected and bearing on the handle, and means for adjusting the movable jaw.



1,348,632 1,349,139. 1,348,832.

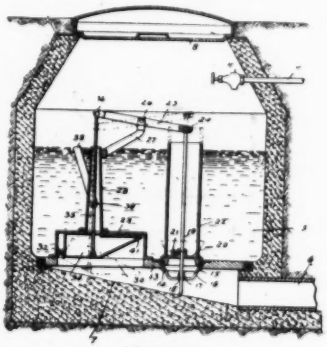
1,349,139. Valve Lock. John M. McDonald, Dubuque, Iowa, assignor to A. Y. McDonald Mfg. Co., Dubuque, Iowa, a corporation of Iowa. In combination with a valve casing having a neck enlarged at its base to provide a polygon with flat faces, a hand wheel projecting from the outer end of the neck, a guide lug outstanding from the neck at a point in alinement with one of the flat faces of the polygonal base, a locking pin slidably mounted within the guide lug in adjacent relation to said flat face of the base and adapted when projected to have its acting end brought into locking relation with the hand wheel, said pin being provided with a transverse hole, and a padlock having a loop adapted to be entered through the hole either when the pin is adapted to bring the hole above or below the guide lug, substantially as described.

1,348,832. Wrench. August Magnan, Great Falls, Mont. A device of the class described comprising an L-shaped member having a long shank serving as a handle and a short shank provided at its inner end with a jaw face adapted to engage the inner side of a pipe or the like and with an opening through its outer end, a second L-shaped member having a threaded long shank extending through said opening and a short shank provided at its outer end with a jaw face adapted to engage the inner side of a pipe or the like and disposed opposite the jaw face carried by the short shank of the first member, the corresponding shanks of said members being arranged in parallel relation and said short shanks projecting in opposite directions, an L-shaped lever having its short arm pivoted to the long shank of the first member and provided with an opening through which the threaded long shank of the second member extends, the long arm of said lever being disposed alongside the long shank of the first member to form a complementary

handle, and a nut threaded upon the long shank of the second member and disposed between the short arm of said lever and the short shank of the first member.

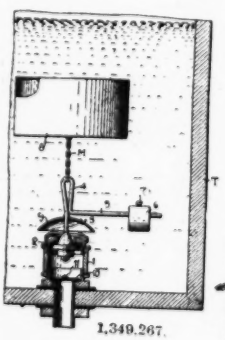
Plumbing Department.

1,349,078. Sewer Flushing Mechanism. Robert A. Maddox, Los Angeles, Cal. A sewer flushing system comprising a well, a sewer pipe leading to the bottom of said well, a false bottom in said well, a valved opening in said false bottom, said false bottom being also provided with an opening, a housing secured to the upper face of said false bottom and covering said opening, a tiltable pan or bucket pivotally mounted within said housing, said tilting pan or bucket being above the upper face of said false bottom when in a normal position, a tubular standard extending upwardly from said housing, an overflow pipe leading to said tubular standard, an arm secured to the upper end of said tubular standard, a lever pivotally secured to said arm midway of its ends, an actuating rod pivotally secured to one end of

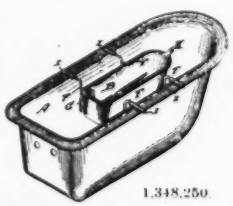


1,349,078

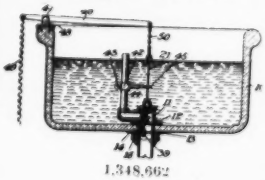
said lever, the free end of said rod being pivotally secured to said pan or bucket, and a valve actuating rod secured to the other end of said lever and to the valve controlling said valve opening, whereby when said tilting bucket is empty said valve will overbalance the same and when said bucket is filled it will overbalance the valve.



1,349,267.



1,348,250.



1,348,662

1,349,267. Float Valve. Clyde L. Craig, Washington Court House, Ohio. In combination with a valve member and its seat, a buoyant body operatively engaged with the valve member, and means for retarding the seating of the valve member under the influence of the buoyant body to submerge the buoyant body before the valve member is in close contact with its seat.

1,348,250. Bathtub. George Canning Strachan, Detroit, Mich. A device of the character described, comprising a bathtub, brackets secured to the bottom of said tub, a plurality of rods extending transversely through said

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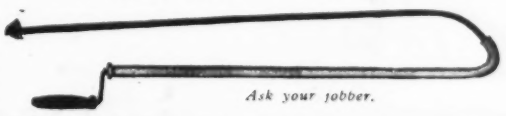

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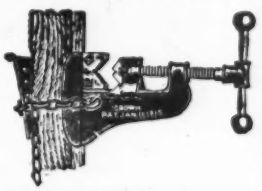

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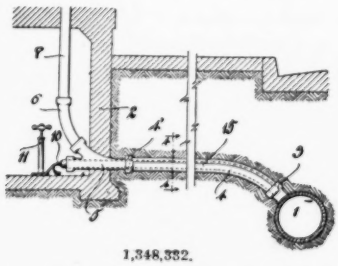
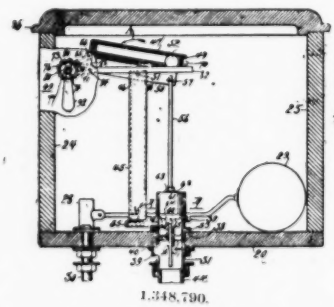
brackets, means for securing the rods in said brackets when adjusted, fittings secured to the outer end of said rods, vertically adjustable members extending into said fittings for supporting the tub at different altitudes upon the walls of a relatively larger tub, and means for securing said vertically adjustable members in rigid relation to the fittings when adjusted.

1,348,662. Flush Valve. Abram N. Pasman, Waterbury, Conn. A flush valve apparatus comprising a body member having a vent and overflow connection, a valve member adapted to seat on the body member, and a device for covering the orifice of the vent and overflow connection within, and extending approximately to the bottom of the body member so as to provide a constant fixed opening for the passage of air through the chamber in the said body member to the vent and overflow connection.

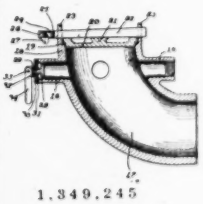


1,348,332.

1,348,332. Sewer Pipe Construction. Joseph Stremel, Spokane, Wash., assignor of one-half to Mrs. Eunice Asher, Spokane, Wash. The method of constructing a conduit which consists in utilizing a trench with an open sheath therein, of depositing a layer of concrete material in the bottom of said sheath, of tamping same, and laying thereon a collapsible core, of depositing and tamping concrete material between said core and the side walls of said sheath and over and around the top of said core to form a unitary body, and turning the core inside out by pulling one end through the body of the core as its walls are disengaged from the interior of the conduit.



1,348,790.

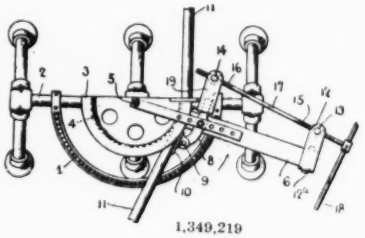


1,349,245

1,348,790. Flush Tank Valve and Appurtenances. Philip M. English, Bayonne, N. J.; Ada J. English, executrix of said Philip M. English, deceased. The combination of a tank, a sleeve extending through the bottom of the tank, the upper face of the sleeve constituting a valve seat, the sleeve having an extension with a cavity that leads to the opening through the sleeve, means to secure the sleeve in place to the bottom of the tank, a hollow column with slots at its upper end supported on said extension with its interior in connection with said cavity, an oscillating beam comprising a barrel with a flange parallel to the longitudinal axis thereof, the said flange located in the slots in the upper end of said hollow column, a hinge pin extending through the column and the flange of the barrel to allow the latter to oscillate, a counter-balancing ball in the barrel, a rigid valve stem with one end pinned to the flange of the barrel,

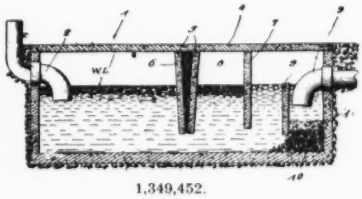
a valve and a non-collapsible float secured to the other end of the valve stem coacting with said valve seat, an arm to tip the beam and an operating handle to actuate the arm.

1,349,245. Clean Out Header for Sewer Entrances. John F. Witt, Winchendon, Mass. In a device of the class described, the combination with a curved header open at both ends, said header having a conical passage therethrough, a plurality of internally threaded inlet openings entering the larger end of said header, plugs adapted to be screwed into said inlet, stems and plate covers on said plugs, and lever handles secured to said plates for the operation of said plugs, the upper end of said header having a circular recess, a cover suited thereto, lugs extending up from said header upon opposite sides, said lugs having an opening, a taper key adapted to pass through the openings in said lugs and press said cover upon its seat, a detent latch pivoted in an opening formed in the smaller end of said key adapted to prevent the removal of said key, means for locking said latch in position and a packing ring disposed between said cover and its seat.



1,349,219

1,349,219. Pipe Bender. George R. Moore and Chester S. Leonard, Philadelphia, Pa. An organized pipe bending mechanism comprising in combination a form, a positioning lever, means for holding the positioning lever against swinging movement in one direction, pipe bending means carried by and movable on the positioning lever, and means on the positioning lever to actuate the pipe bending means individually.



1,349,452.

1,349,452. Septic Tank. Melvin James Griffith, Barberton, Ohio. A septic tank adapted to contain water including inlet and outlet openings, and a V-shaped bacteria brooding pocket in said tank, said pocket being open at its bottom which is disposed below the normal water line to permit the water to circulate therethrough.

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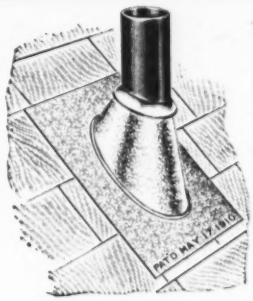
Mexico is done with revolutions and has embarked upon a program of economic, political and social development which will surprise the world in a few years, according to General Salvador Alvarado, publisher of "El Heraldo of Mexico City" and secretary of the treasury in the new provisional government. He says the government is prepared to spend $25,000,000 on American railroad equipment.



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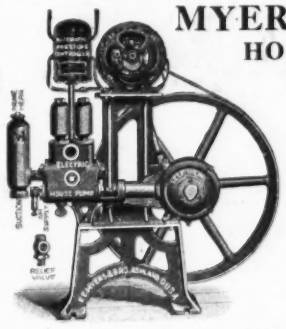

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